CONSULTING PLANNERS

STATEMENT OF ENVIRONMENTAL EFFECTS

FOR PROPOSED ADDITIONS TO THE OUTER METROPOLITAN MULTI-PURPOSE CORRECTIONAL CENTRE (OMMPCC) WITHIN THE JOHN MORONY CORRECTIONAL COMPLEX

464-570 RICHMOND ROAD, BERKSHIRE PARK

Prepared for
NSW Department of Justice

By
BBC Consulting Planners

Job No. 15-032

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APPENDICES

1. INTRODUCTION

The NSW Department of Justice ("DJ") has engaged BBC Consulting Planners to prepare a Statement of Environmental Effects ("SEE") for proposed alterations and additions to the Outer Metropolitan Multi-Purpose Correctional Centre ("OMMPC") within the John Morony Correctional Complex ("JMCC") at The Northern Road, Berkshire Park.

This SEE has been prepared to accompany a development application ("DA") lodged pursuant to Section 78A of the Environmental Planning and Assessment Act 1979, for alterations and additions to the JMCC for the purposes of expanding its existing accommodation. The proposed works provide for:

- erection of one demountable building comprising additional secure residential accommodation;
- an increase in the capacity of the facility from 330 to 380 inmates;
- and associated stormwater and drainage works.

The additional demountable unit is to provide for an increase in the capacity of the centre to accommodate inmates. It forms the second part of a 2 part development with the first part being the provision of one demountable accommodation unit, the provision of associated security fencing, officers and associated works to integrate into the existing facility. These works are to be undertaken by DJ in accordance with State Environmental Planning Policy (Infrastructure) 2007 ("Infrastructure SEPP") with assessment under Part 5 of the EP&A Act. For the purposes of this development application, the site is assumed to be in its condition following these first part works.

The SEE details the site's location and context and describes the proposed development. An assessment of the proposal addresses the relevant matters for consideration, including the State Environmental Planning Policy (Infrastructure) 2007 ("Infrastructure SEPP") and Penrith Local Environmental Plan 2010 ("the LEP") and Section 79C of the Environmental Planning and Assessment Act 1979.

This SEE is accompanied by the following documents:

- Site Survey prepared by Proust and Gardner Consulting Surveyors and Planners;
- Architectural Plans prepared by Perumal Pedavoli Architects;
- Fire Report prepared by Bushfire Safety Solutions.

2. The Site and its Context

2.1 Location

The John Morony Correctional Complex ("JMCC") is situated off The Northern Road, South Windsor (see **Figure 1 to 3B**). The JMCC street address is 464-570 Richmond Road, Berkshire Park and its real property identifier is described as Lot 1 in DP 740367 ("The site"). The site has an area of 133.2 hectares. It is owned by the Department of Corrective Services ("DCS"). The JMCC is located immediately to the south of the intersection of The Northern Road and Richmond Road and has frontage to both these roads. The closest residential suburb is Bligh Park which is located to the north-east and is separated from the JMCC by the Windsor Downs Nature Reserve.

The location of the proposed works in this DA is within the confines of the JMCC. The proposed single storey building would be approximately 700 metres from The Northern Road and thus would not be visible from this road or any surrounding properties.

The location of the proposed development is shown on the Site Plan at **Appendix 2**.

2.2 Existing Uses

The existing buildings and uses which make up the JMCC are shown in the DA drawings attached in **Appendix 2** and **Figure 3**. The site of the JMCC presently comprises, inter alia, the following:

- John Morony Correctional Centre (JM1) – this was designed as a medium security facility and has the capacity to accommodate 280 inmates;
- Outer Metropolitan Multi-Purpose Correctional Centre ("OMMPCC") – this was designed as a minimum security facility and has the capacity to accommodate 300 inmates;
- Dillwynia Correctional Centre ("DCC") – this was designed as a medium security correctional centre designed to accommodate 200 female inmates;
- Several units of the Security & Intelligence Branch including the Specialised Training Unit, the Drug Detector Dog Unit and the Pre Release Programs Unit;
- A special program unit attached to the OMMPCC called the RSCPA NSW – CS NSW Dog Rehabilitation Program. This program rehabilitates dogs for re-housing and offers specialised offender educational opportunities. The Dog Rehabilitation Program is conducted under the supervision of correctional officers who also have access to training and development opportunities related to animal studies;
- A special program unit attached to the DCC called the Greyhounds as Pets Program. This collaborative project between Corrective Services NSW and Greyhound Racing NSW rehabilitates greyhounds for re-housing and offers specialised offender educational opportunities. The Greyhounds as Pets Program is conducted under the supervision of correctional officers who also have access to training and development opportunities related to animal studies;
- A wildlife centre which gives inmates the chance to work with the NSW Wildlife Information Rescue and Education Service (WIRES) and Sydney Metropolitan Wildlife Services, caring for injured, orphaned and sick animals;

- Associated support services and buildings for Corrective Services NSW which are primarily located on either side of the main entrance road. These include stores, an industrial kitchen, metal fabricating workshop, staff amenities, prison laundry, and car parks;
- To the north-east of OMMPCC is an existing detention basin. Adjacent to this detention basin is a waste water treatment plant.

For the purposes of this development application, the site of the proposed demountable is the site in its condition following the works to install one demountable and associated security fencing accessways, officers post and the like. This site is shown on the site plan contained in **Appendix 2**. These works have not yet been undertaken and would be undertaken as an activity in accordance with an approval under Part 5 of the EP&A Act.

2.3 Topography and Site Characteristics

The majority of the proposed development zone is predominantly flat and has a RL of around 29 metres.

The site is characterised by various buildings, such as demountables and permanent buildings, varying in size dependent upon their role within the complex.

The site is above the 1 in 100 year ARI flood level (see **Figure 4B**).

2.4 Geotechnical Suitability

A range of geotechnical investigations have been undertaken on the site associated with various development programs. There is no evidence of fill on the site of the proposed development as the area has been partially cleared in the past. The site is considered suitable for the proposal and geotechnical investigations will be undertaken for the proposed works as required to determine appropriate foundation requirements.

2.5 Contamination

The area to be developed for the additional residential accommodation to the north-east of the OMMPC is currently vacant land and has no known history of previous occupation. Consequently, there is little likelihood of contaminated material being present. An unexpected finds protocol will be implemented during the construction program and a condition of approval to this effect is proposed.

2.6 Acid Sulphate Soils

The site is not identified in the NSW Acid Sulfate Soil Risk Map as being a potential source of acid sulphate soil material. Previous inspections of the site have indicated that the topography is not typical of such soils. The possibility of acid sulphate soil conditions is not considered a significant issue.

2.7 Flora and Fauna

The site of the proposed demountable is cleared land mown and kept as a grassed area. No threatened species were identified to be present on the site of the demountable. No vegetation removal is required for this development other than for the currently lawn area.

2.8 Aboriginal Culture and Heritage

Investigations carried out for previous development on site showed that most Aboriginal occupation in the area occurred around regular water sources and that open woodland areas, such as those around South Windsor, were occupied less frequently. Previous investigations found a single artefact in the vicinity of the disused tyre dump in the north eastern central portion of the site. This artefact was not assessed to be significant. The area where the artefact was found will not be disturbed by the current development proposal.

The proposed development is located on land already cleared and disturbed. Existing legislation prescribes actions to be taken in the event that any aboriginal artefacts are discovered during construction.

2.9 Non-Indigenous Heritage

A search of the Heritage Database showed that there are no registered items of non-indigenous heritage significance. Furthermore, there are no items of heritage significance listed in Penrith LEP 2010 within or in close proximity to the subject site.

2.10 Traffic, Access and Parking

Access to the site is currently via a sealed 6 metre wide road leading from The Northern Road. The existing intersection would be used to provide access to the proposal. The Complex is approximately 10 minutes' drive from Windsor, 32 kilometres from Parramatta, 19 kms from Blacktown and 14 kms from Penrith.

Regular train services stop at either Windsor or Mt Druitt railway stations. Bus route 674 (Busways) operates between Mt Druitt and Windsor railway station via the Complex on a limited service from Monday to Sunday including public holidays.

The proposals will not affect existing access to the site, an existing road is available to service the proposed demountable accommodation buildings.

Parking is provided on-site for staff and visitors to the facility.

2.11 Availability of Utility Services

Utility services including water, power and sewer are available to the site and can be extended to the location of the proposed accommodation buildings.

2.12 Stormwater Drainage

The existing stormwater drainage system consists of swales, pits, pipes and detention basins. The proposed demountable would integrate into the existing stormwater drainage network.

2.13 SURROUNDING ENVIRONMENT

2.13.1 General Observations

The general character of the area is depicted in **Figure 3**. The surrounding area is rural and semi-rural in nature and is typical of a metropolitan fringe area. Much of the land is covered in native forest vegetation, however, other typical activities include dog and cat kennels, horticulture and garden supplies. The JMCC is relatively isolated and is approximately 1.5 kilometres from the nearest suburban area of Bligh Park. The nearest commercial and industrial areas are located in Windsor and the Windsor Downs Nature Reserve effectively separates the JMCC from these areas.

2.13.2 To the North-West

To the north-west of the JMCC on the opposite side of the Northern Road, is Londonderry, comprising sparsely developed rural and rural residential uses. Beyond these uses is Rickaby's Creek which flows north-eastwards around the town of Windsor and into the Hawkesbury River.

2.13.3 To the North-East

To the north-east of the JMCC on the opposite side of Richmond Road is the Windsor Downs Nature Reserve. This is a large nature reserve managed by the National Parks and Wildlife Service. This nature reserve is listed as the Riverstone Natural Area on the Australian Heritage Commission's Register of the National Estate. It comprises one of the last and least disturbed remnants of the original Cumberland Plains vegetation and comprises an approximate area of 410 hectares.

2.13.4 To the South-East

To the south-east of the JMCC is Lot 2 in DP 740367 which is also owned by the DCS and comprises mostly bushland. To the south of Lot 2, beyond Llandilo Road, the character of the area is rural or semi-rural in nature and is characterised by land uses such as horticulture, sparsely settled rural residential and garden supplies.

2.13.5 To the South-West

To the south-west of the JMCC is the former Castlereagh Regional Liquid Waste Disposal Depot. Further to the south-west of the waste disposal facility is the Castlereagh Bicentennial Demonstration Forest. This forest is used for the management of native vegetation and the commercial cutting of Ironbark. The forest also contains walking trails, horse riding, bicycle and trail bike riding trails.

3. THE PROPOSED DEVELOPMENT

3.1 . Objectives of the Proposal

The objective of the proposal is to provide addition prisoner accommodation to meet increasing demand for prisoner accommodation on-site.

3.2 Proposed Development

The proposed works are related to the alterations and additions of the existing OMMPCC within the Complex and can be summarised as follows:

- One new demountable accommodation block; and
- Stormwater and drainage works.

Plans of the proposal are included in **Appendix 2**.

3.3 Sequencing of Construction Works

Works would be undertaken generally in conjunction with other works in the area associated with the establishment of security fencing and the erection of one demountable unit. Consideration would be given to ensuring the works can be undertaken in a manner to ensure security measures are maintained at all times. The phasing of works would enable DJ to install and test one demountable prior to the completion of the development to which this application relates.

Plant and machinery used during construction will include bulldozers, graders, tip trucks, semi-trailers, concrete trucks and water trucks.

3.4 Hours of Work

Construction would be undertaken during standard work hours:

- Monday to Friday 7 am to 6 pm;
- Saturday 8 am to 1 pm; and
- No work on Sundays or public holidays.

Work outside these hours may occur if required to connect services or to otherwise adapt construction activities in a secure correctional centre environment. In view of the separation of the work area from any residential or other sensitive receptors in the vicinity, such activity on an occasional basis is possible.

3.5 Hours of Operation

The OMMPCC will continue to operate 24 hours a day, 7 days a week.

3.6 Proposed Use

The OMMPCC will continue to be used as a minimum security correctional centre for males with the new accommodation blocks housing inmates who are more restricted in their daily activities.

3.7 Staff and Inmate Numbers

There will be a slight change to inmate levels at the OMMPCC as a consequence of the additional residential accommodation. The capacity of the centre will increase from 330 inmates to 380 inmates.

No additional staff would be required as a result of the proposal.

3.8 Design, Form and Materials

The new accommodation block has been designed as a demountable building to meet the immediate need for additional inmate accommodation and form an extension to the existing footprint of OMMPCC causing minimal environmental impact. The demountable building would be a steeled framed structure with colorbond seel Bondor panel external walls, insulated metal roof and steel framed windows with Lexan MR10 hard polycarbonate glazing and metal grill.

3.9 Access

Access to the site will remain from The Northern Road. The internal road network will also remain the same.

Construction vehicles will enter via The Northern Road and will use the existing internal road network.

3.10 Car Parking

The existing car parking at the site will remain. No additional parking is required as a result of the proposal.

3.11 Security

The reconfiguration and addition of fencing would not result in additional escape risks. All security measures would be retained in place during the construction phase until the new section of the OMMPCC is completed.

3.12 Bushfire Management

The site is bushfire prone land. Consequently investigations have been undertaken to ensure that appropriate bush fire protection measures are incorporated into the design[1]. This report was prepared in relation to a previous proposal for development in the same location as the proposed demountable building and thus the findings of this report are relevant to this development.

This investigation (**Appendix 3**) found that *The John Morony Correctional Centre is capable of being provided with passive bushfire protection measures that, as a standalone strategy,*

[1] Bushfire Management Report John Morony Correctional Centre Berkshire Park NSW prepared by Bushfire Safety Solutions, Report No: 2014/07A March 2014

will provide sufficient enough protection of the facility based on the level of likely bushfire threat from the prominent bushfire threat aspects.

The recommended Bushfire Protection Measures are:

> *1. The additional asset protection zone is recommended to be maintained in accordance with the construction standards of an Outer Protection Zone whereby combustible fuel levels are no greater than 8t/ha.*
>
> *2. The existing asset protection zone within the managed areas of the northern and eastern aspects of the proposed development area to be maintained as an Inner Protection Zone;*
>
> *3. The existing and proposed asset protection zone is recommended to be managed in accordance with the Bushfire Management Plan as described on page 16 of this Bushfire Management Plan.*
>
> *4. Where separate recommendations for select areas of sensitive vegetation to be preserved are located within the maximum 70m APZ, the selected areas should be maintained to maximum fuel levels of no greater than 8t/ha of combustible fuels.*

These measures will be incorporated into the design of the facility.

3.13 Stormwater Management

Roof water from the proposed development would be collected and conveyed via a series of pipes and pits to connect to the existing stormwater system on the site including to the existing swales and then to the existing detention basins on the site as required.

4. Planning Controls

The following matters are required to be considered in the assessment of this development application under 79C of Environmental Planning and Assessment Act 1979.

4.1 State Environmental Planning Policies

4.1.1 State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP applies to the proposal, in particular its Division 2 Correctional Centres provisions, as in this instance the proposal provided for more than a 10% increase in the number of persons accommodated at the centre.

The relevant provisions in the SEPP in respect to development are:-

> *"24 Definition*
>
> *In this Division:*
>
> *correctional centre means:*
>
> *(a) any premises declared to be a correctional centre by a proclamation in force under section 225 of the Crimes (Administration of Sentences) Act 1999, including any juvenile correctional centre or periodic detention centre, and*
>
> *(b) any premises declared to be a detention centre by an order in force under section 5 (1) of the Children (Detention Centres) Act 1987,*
>
> *but does not include any police station or court cell complex in which a person is held in custody in accordance with any Act.*
>
> *prescribed zone means any of the following land use zones or a land use zone that is equivalent to any of those zones:*
>
> *(a) RU2 Rural Landscape,*
>
> *(b) RU4 Rural Small Holdings,*
>
> *(c) RU6 Transition,*
>
> *(d) B4 Mixed Use,*
>
> *(e) SP1 Special Activities,*
>
> *(f) SP2 Infrastructure.*
>
> *25 Development permitted with consent*
>
> *(1) Development for the purpose of correctional centres may be carried out by or on behalf of a public authority with consent on land in a prescribed zone.*
>
> *(2) Development for the purpose of a correctional centre may be carried out by or on behalf of a public authority with consent on Lot 1, DP 740367 in the vicinity of Windsor in the City of Penrith.*
>
> *(3) A reference in this clause to development for the purpose of correctional centres includes a reference to development for any of the following purposes if the development is associated with a correctional centre:*

(a) accommodation for staff,

(b) administration buildings,

(c) car parks for visitors and staff,

(d) educational establishments,

(e) group homes (as defined by clause 59),

(f) health services facilities (as defined by clause 56),

(g) industries,

(h) recreational facilities."

Comment

The proposed development is permissible with consent under the SEPP.

4.1.2 State Environmental Planning Policy No 55 Remediation of Land

SEPP 55 requires the approval authority to consider whether the land to which the application relates may be contaminated. If the land requires remediation to ensure that is made suitable for a proposed use, DJ must be satisfied that the land can and will be remediated before the land is used for that purpose.

As discussed in Section 2.7, the development is located is currently vacant land and has no known history of previous occupation. Consequently, there is little likelihood of contaminated material being present. An unexpected finds protocol will be implemented during the construction program and a condition of approval to this effect is proposed.

4.1.3 Sydney Regional Environmental Plan No. 30 – St Marys

The site is subject to the provisions of Sydney Regional Environmental Plan No. 30 – St Marys (SREP 30). For reasons given elsewhere in this report, it is considered that the development is consistent with the provisions of this plan.

4.2 Penrith Local Environmental Plan 2010

The subject site is located in the Penrith Local Government Area ("LGA") and is zoned "SP2 Correctional Centre" pursuant to *Penrith Local Environmental Plan 2010* ("the LEP").

The objectives of the SP2 zone are as follows:

- *To provide for infrastructure and related uses.*
- *To prevent development that is not compatible with or that may detract from the provision of infrastructure.*

The proposed development is consistent with the objectives of this zone in that

- The proposal will be in keeping with the existing use of the site as a correctional centre; and

- The proposal will not have any adverse impacts on surrounding land and does not detract from the provision of infrastructure.

4.3 Development Control Plan

This development is in accordance with the relevant city wide provisions of the Penrith Development Control Plan 2014 however there are no specific provision applicable.

In relation to C1 Site Planning and Design Principles, the development has been designed as a logical extension of the existing correctional centre.

In relation to C2 Vegetation Management, the development does not involve the removal of any trees or other vegetation and no threatened species. Consideration has been given to the environmental implications of asset protection measures.

In relation to C3 Water Management, provision has been made for the conveyance of stormwater to appropriate facilities including detention basins and swales that would provide water quantity and quality controls.

In relation to C4 Land Management, the site is flat and with limited potential for run off. Erosion and sediment controls would be in place prior to and during construction. There is no evidence to suggest that the site of the proposed works is contaminated.

In relation to C5 Waste Management, waste from the proposed development would be managed in accordance with existing arrangements. Construction waste will be managed in accordance with standard Government contract requirements.

In relation to C6 Landscape Design, no landscaping is proposed as part of the development for security reasons within a correctional complex. The development is approximately i700 metres from The Northern Road and would not be visible from this road or any surrounding properties.

In relation to C7 Culture and Heritage, the development is not expected to impact on any known items of significance.

In relation to C8 Public Domain, the development has no impact on the public domain.

In relation to C9 Advertising and Signage, there are no changes to signage proposed.

In relation to C10 Transport Access and Parking, the additional accommodation and inmate population would have no discernible impact on traffic generation of parking requirements. Visits would continue to be managed in accordance with the capacity of the visits centre. No increase in staff is expected and staff parking would be managed within the existing parking allocations.

In relation to C11 Subdivision, the application does not involve subdivision.

In relation to C12 Noise and vibration, the development is well removed from any sensitive receptors and would not have any adverse impacts during construction or operation.

In relation to C13 Infrastructure and Services, the development would have no impact on available services and would be managed by existing infrastructure which would be extended to the additions as required.

5. Section 79C Considerations

In determining the subject DA, Council is required to consider those relevant matters listed in Section 79C of the Environmental Planning and Assessment Act, 1979 ("the Act"). Each of the relevant matters is addressed below.

5.1 Section 79C(1)(a) – Statutory Planning Considerations

Section 79C(a) of the Act requires the consent authority to take into consideration:-

> *"(a) the provisions of:*
>
> *(i) any environmental planning instrument; and*
>
> *(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Director-General has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved); and*
>
> *(iii) any development control plan; and*
>
> *(iiia) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under section 93F, and*
>
> *(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph), and*
>
> *(v) any coastal zone management plan (within the meaning of the Coastal Protection Act 1979),*
>
> *that apply to the land to which the development application relates,"*

In relation to **Section 79C(1)(a)(i)** and **(a)(iii)** of the Act, these matters are addressed above.

In relation to **Section 79C(1)(a)(ii)**, we are not aware of any proposed instrument affecting this development.

In relation to **Section 79C(1)(a)(iii)(a)**, no planning agreement is proposed.

In relation to **Section 79C(1)(a)(iv)**, Clause 92 of the Environmental Planning and Assessment Regulation 2000 contains no additional matters relevant to this application. Having regard to fire protection measures (clause 93 of the Regulation) the development would be constructed in accordance with the BCA as required for a correctional facility. Clause 94 is not relevant to this application.

In relation to **Section 79C(1)(a)(v)**, this sub-section does not apply to this development.

5.2 Section 79C(1)(b) – Environmental, Social and Economic Impacts

Section 79C(1)(b) requires the consent authority to consider:-

> *"(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality."*

The relevant matters are addressed below.

5.2.1 Impacts on the natural environment

The proposed building would have no adverse impacts on the natural environment. This is because the development is located on land that is cleared and forms part of an existing correctional complex. However the bushfire report referred to above recommends maintenance of asset protection zones.

In order to determine any likely impacts of the asset protection measures on flora and fauna reference is made to the Flora and Fauna Assessment contained in **Appendix 4**. This report was prepared for a different proposal in the same area for a development footprint as shown in the report in **Appendix 4**. However the findings of this report are relevant to this application as the development and its asset protection zone are in a similar location.

The findings and recommendations of this investigation are:

> *The proposal is not likely to have a significant impact on the conservation of any threatened species, population or ecological community. Therefore further assessment in the form of a Species Impact Statement (SIS) is not recommended in relation to this proposal. It must be noted that this conclusion only applies to the proposal described in this report, the assumptions made in this report and the development shown on Map 5, 6 and 7 of this report.*

Based on this report it is concluded that the maintenance of asset protection zones for the proposed development to which this application relates would have no significant impact on the conservation of any threatened species, population or ecological community.

5.2.2 Traffic and parking impacts

The additional accommodation and inmate population would have no discernible impact on traffic generation of parking requirements. Visits would continue to be managed in accordance with the capacity of the visits centre. No increase in staff is expected and staff parking would be managed within the existing parking allocations.

The existing access arrangements function adequately and the performance of this access would not change as a result of this minor development.

5.2.3 Noise Impacts

It is considered that the development would have no adverse acoustic impacts during construction or operation.

5.2.4 Social and economic impacts

The social and economic impacts of the proposal will be positive, in that the development would provide much needed inmate accommodation and enable the need for such accommodation to be provided on a site suitable for this purpose and in a manner that would have no adverse impacts on the surrounding area.

5.2.5 Development Potential of Adjoining Land

The development has no impact on adjoining lands.

5.3 Section 79C(1)(c) – The suitability of the site

Section 79C(c) requires the consent authority to consider:

> *"(c) the suitability of the site for the development."*

The site is zoned for correctional centre use and is used for this purpose. The development is located on part of the site that is cleared and suited for this purpose.

5.4 Section 79C(1)(d) – Submissions

Section 79C(d) requires the consent authority to consider:

> *"(d) any submissions made in accordance with this Act or the regulations".*

Any relevant submissions would need to be considered by Council.

5.5 Section 79C(1)(e) – Public interest

Section 79C(e) requires the consent authority to consider:

> *"(e) the public interest".*

The public interest is best served by the orderly and economic use of land for permissible purposes in a form which is cognisant of and does not impact unreasonably on surrounding uses, and which satisfies a market demand, in this case for residential dwellings.

The proposal is considered to be in the public interest.

5.6 Section 79C(1) (2) and (3A) Compliance with non-discretionary development standards and Development control plans

These provisions of Section 79(C) state:-

> *"**Section 79C(1)***
>
> *(2) Compliance with non-discretionary development standards—development other than complying development*
>
> *If an environmental planning instrument or a regulation contains non-discretionary development standards and development, not being complying development, the subject of a development application complies with those standards, the consent authority:*
>
> *(a) is not entitled to take those standards into further consideration in determining the development application, and*
>
> *(b) must not refuse the application on the ground that the development does not comply with those standards, and*
>
> *(c) must not impose a condition of consent that has the same, or substantially the same, effect as those standards but is more onerous than those standards,*
>
> *and the discretion of the consent authority under this section and section 80 is limited accordingly.*

(3) If an environmental planning instrument or a regulation contains non-discretionary development standards and development the subject of a development application does not comply with those standards:

(a) subsection (2) does not apply and the discretion of the consent authority under this section and section 80 is not limited as referred to in that subsection, and

(b) a provision of an environmental planning instrument that allows flexibility in the application of a development standard may be applied to the non-discretionary development standard.

Note. The application of non-discretionary development standards to complying development is dealt with in section 85A (3) and (4).

(3A) Development control plans

If a development control plan contains provisions that relate to the development that is the subject of a development application, the consent authority:

(a) if those provisions set standards with respect to an aspect of the development and the development application complies with those standards—is not to require more onerous standards with respect to that aspect of the development, and

(b) if those provisions set standards with respect to an aspect of the development and the development application does not comply with those standards—is to be flexible in applying those provisions and allow reasonable alternative solutions that achieve the objects of those standards for dealing with that aspect of the development, and

(c) may consider those provisions only in connection with the assessment of that development application.

In this subsection, standards include performance criteria."

The above provisions are relevant to the subject proposal as they provide statutory requirements as to how the proposal's general compliance with Environmental Planning Instruments and then minor non-compliance with discretionary DCP controls, should be considered.

Section 79C(1)(2) states a consent authority cannot refuse a development that complies with its core LEP standards on the basis of those controls.

Section 79C(1)(3A) then requires that the assessment of DCP provisions is undertaken with reasonable flexibility. These provisions clearly seek to ensure that the greatest level of weight is given to compliance with the relevant Environmental Planning Instruments and that a more flexible approach should be taken to lesser controls, particularly those in the relevant DCP.

The intent of Section 79(1),(2) and (3A) is to avoid consent authorities 'spoiling' development that complies with the higher level standards in an Environmental Planning Instrument by

reference to lesser controls in a DCP and compel consent authorities to be flexible in the application of its DCP controls where the objectives of that control are met. .

This development warrants the reasonable flexibility envisaged under Section 79C(1)(3A) of the Act in respect to the application of DCP controls.

6. Conclusion

The objective of the proposal is to provide additional accommodation and an increase in inmate numbers at the existing OMMPCC.

The proposal would produce some minor adverse impacts during the construction phase, which are unavoidable for this type of development. However, through the adoption of appropriate and targeted environmental measures during the construction phase, these impacts would be substantially mitigated. Having regard to matters listed for consideration under the EP&A Act and its accompanying regulation, it is considered that the development would have no significant adverse impact and is worthy of approval.

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FIGURES

Source: http://maps.six.nsw.gov.au/

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STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 1
Location

Prepared For - NSW Department of Corrective Service

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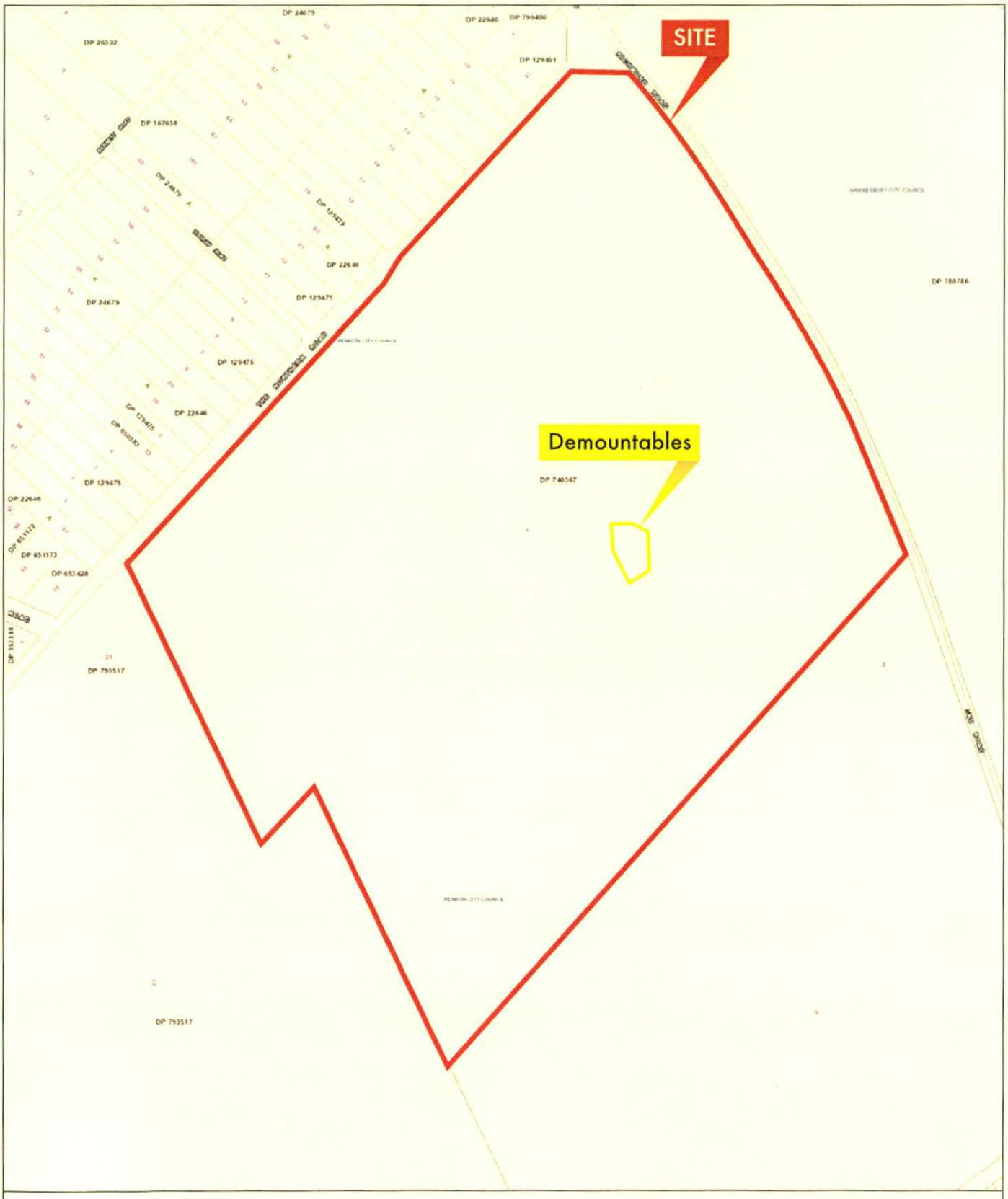

Source: http://maps.six.nsw.gov.au/

STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 2
Site

Prepared For - NSW Department of Corrective Service

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Source: NearMap 2015

STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 3A
Aerial Photo - Detail

Prepared For - NSW Department of Corrective Service

BBC CONSULTING PLANNERS

Source: NearMap 2015

STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 3B
Aerial Photo - Wider Area

Prepared For - NSW Department of Corrective Service

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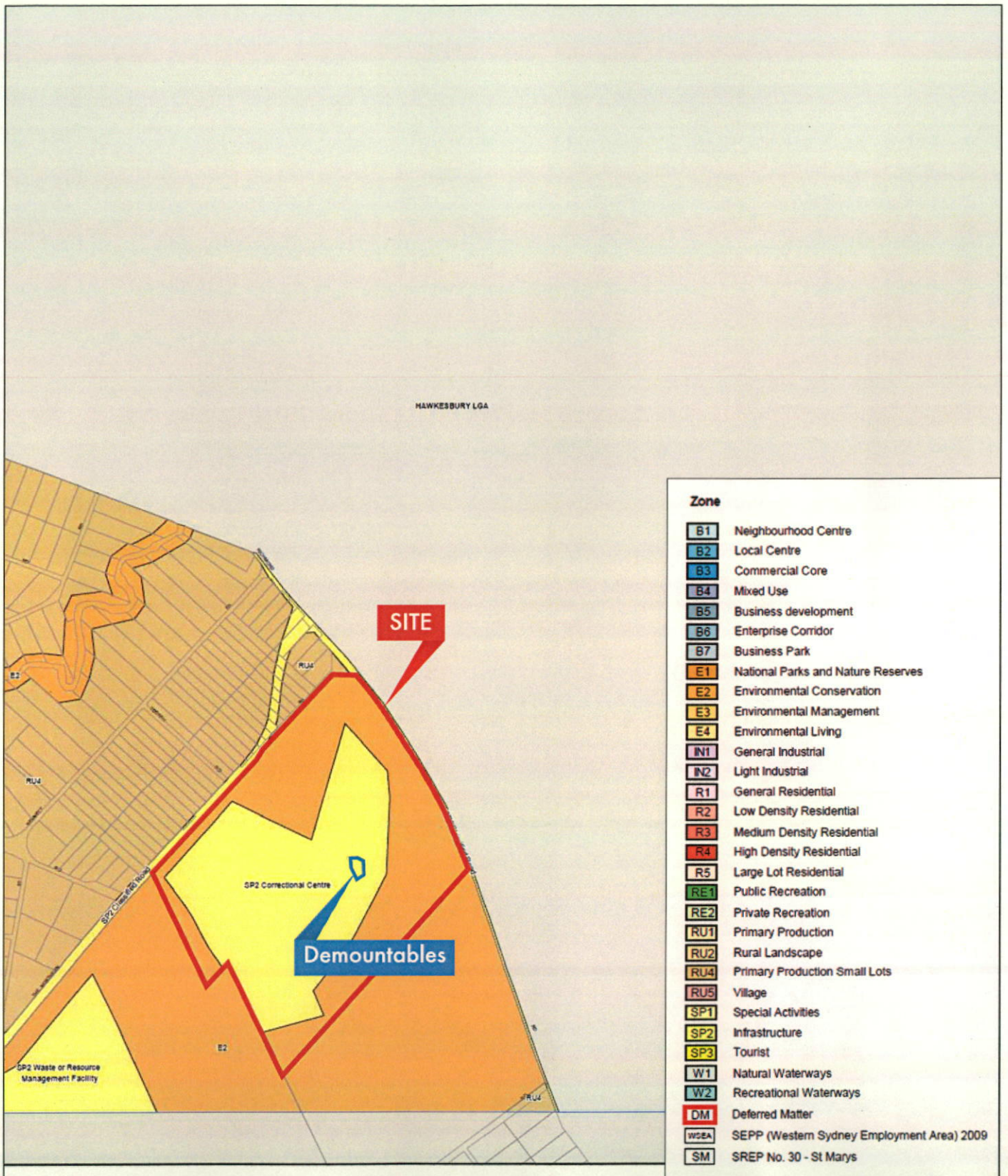

STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 4A
Zoning Map - Penrith LEP 2010

Prepared For - NSW Department of Corrective Service

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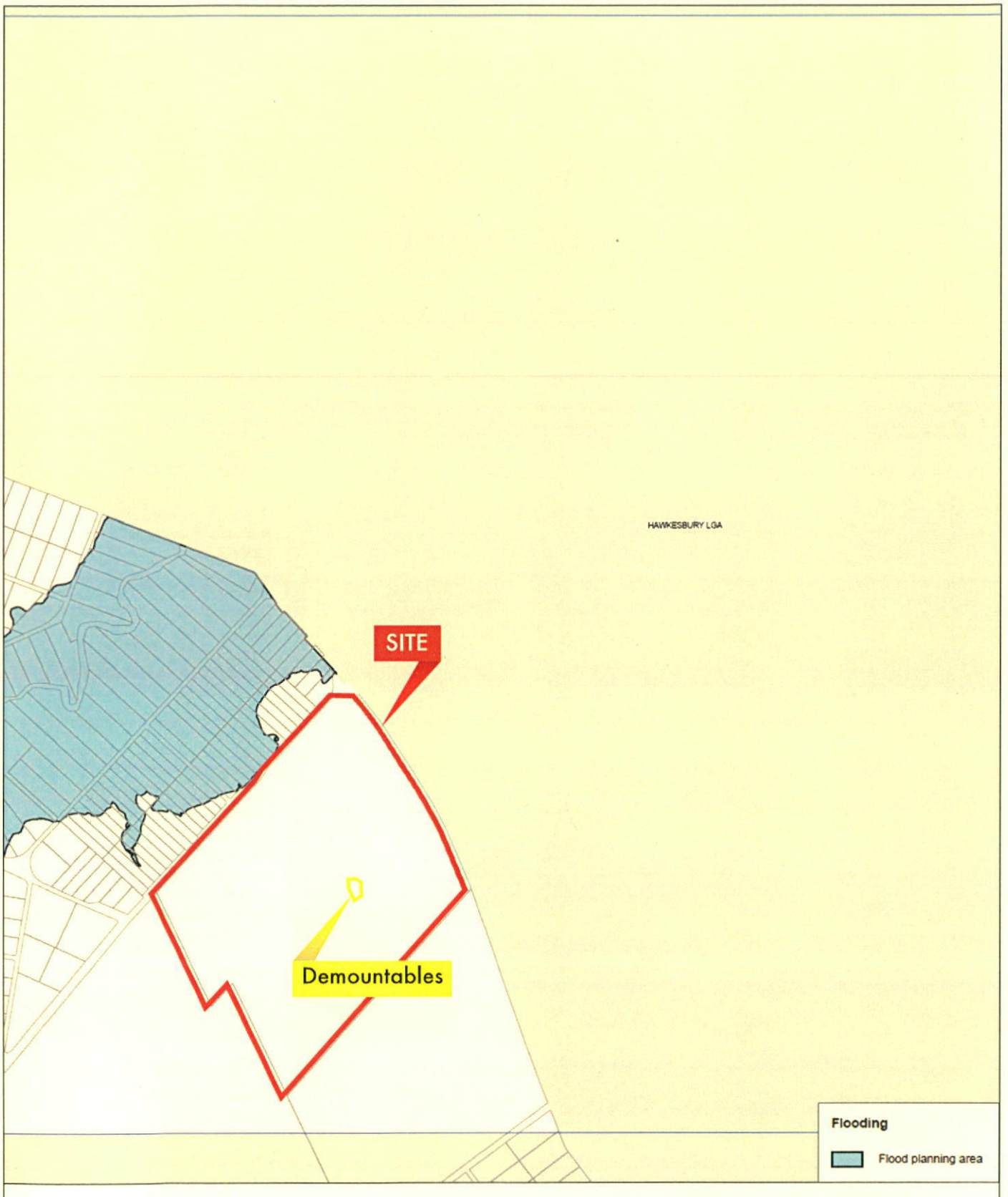

STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 4B
Flood Planning Land Map - Penrith LEP 2010

Prepared For - NSW Department of Corrective Service

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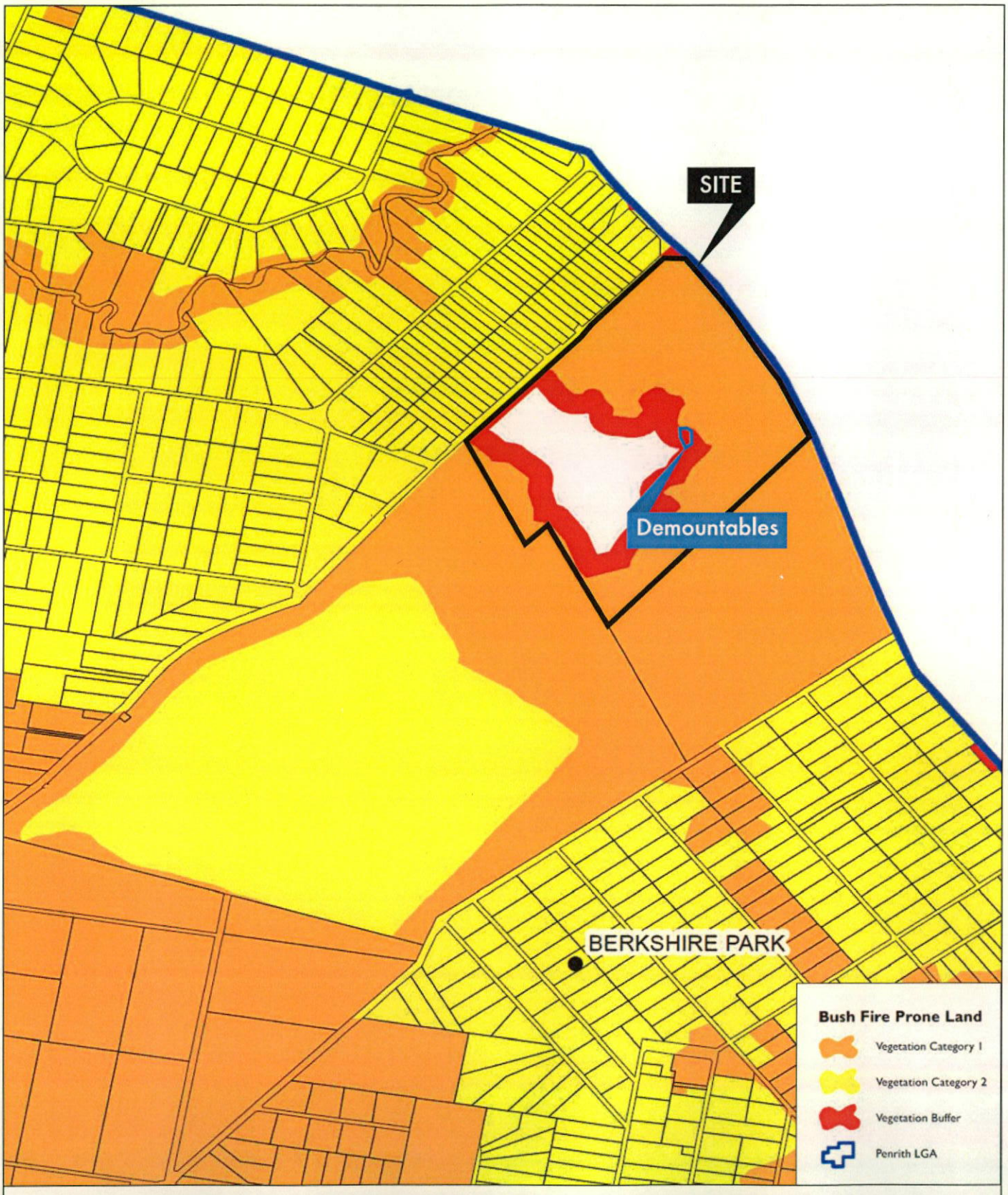

STATEMENT OF ENVIRONMENTAL EFFECTS
The John Morony Correctional Complex
The Northern Road, South Windsor

FIGURE 5
Bush Fire Prone Land Map - GIS Services Unit 10th Nov 2014

Prepared For - NSW Department of Corrective Service

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APPENDICES

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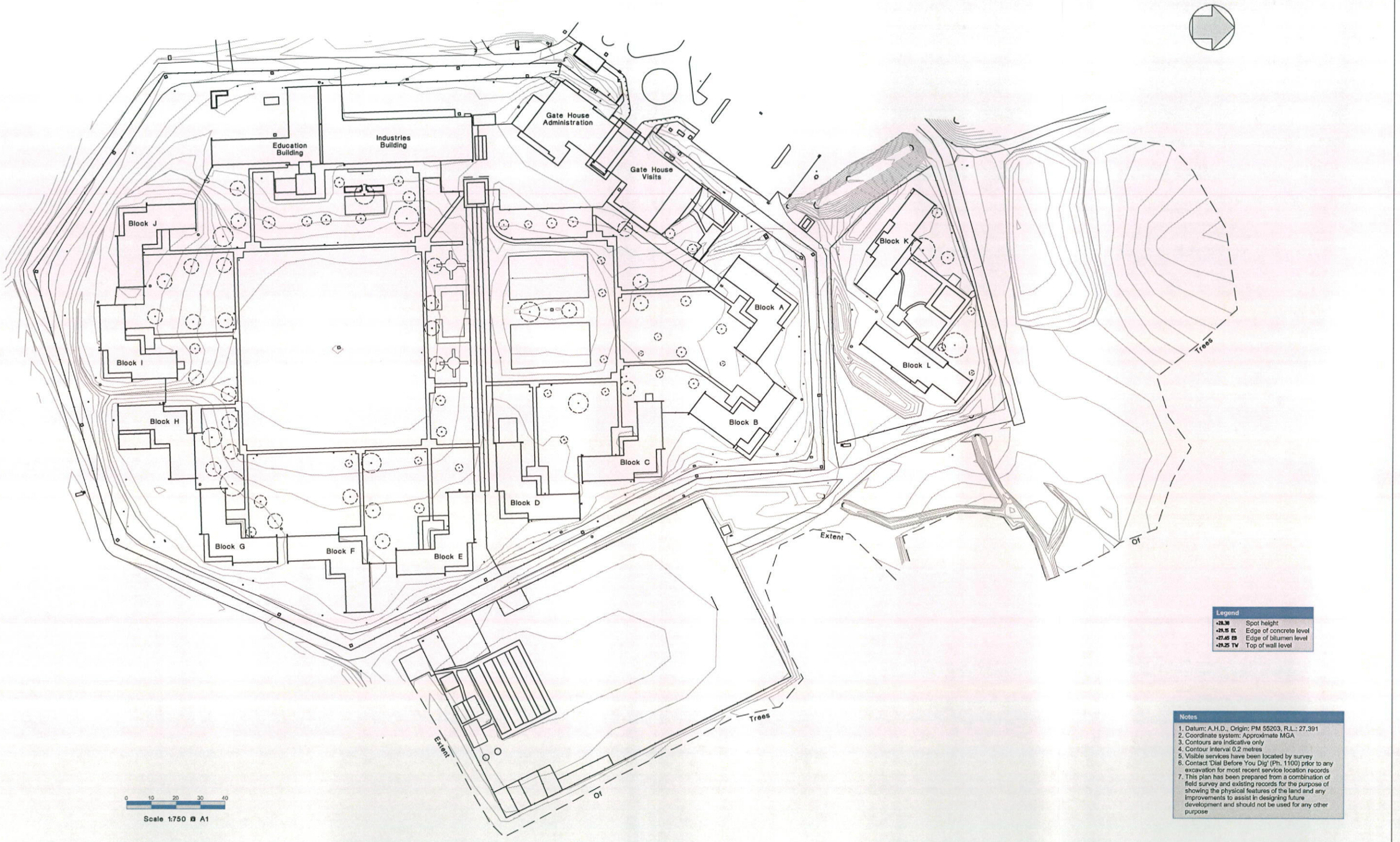
APPENDIX 1

Site Survey

Surveyed : RP Approved : RC

No.	Amendment	Date
A	Original Issue	04/02/2014



0 10 20 30 40

Scale 1:750 @ A1

Legend

+28.38	Spot height
+29.15 EC	Edge of concrete level
+27.65 EB	Edge of bitumen level
+29.25 TW	Top of wall level

Notes

1. Datum: A.H.D., Origin: PM 55203, R.L.: 27.391
2. Coordinate system: Approximate MGA
3. Contours are indicative only
4. Contour interval 0.2 metres
5. Visible services have been located by survey
6. Contact 'Dial Before You Dig' (Ph. 1100) prior to any excavation for most recent service location records
7. This plan has been prepared from a combination of field survey and existing records for the purpose of showing the physical features of the land and any improvements to assist in designing future development and should not be used for any other purpose

PROUST&GARDNER
CONSULTING PTY LIMITED
SURVEYORS & PLANNERS
406 Pacific Highway
PO Box 132
Lindfield NSW 2070
Tel: 9416 1335
Fax: 9416 3845
Email: png@png.com.au

DIAL BEFORE YOU DIG www.1100.com.au

DETAIL SURVEY PLAN

JOHN MORONEY 2 CORRECTIONAL CENTRE
THE NORTHERN ROAD
BERKSHIRE PARK

Scale : 1:750 @ A1 Date : 29/01/2014 Plan No. : 23208-Detail Issue : A

Client : Department of Attorney General & Justice

Filename : P:\23208 Lot 1 The Northern Road Berkshire Park\Drawings\Detail pdf.dwg

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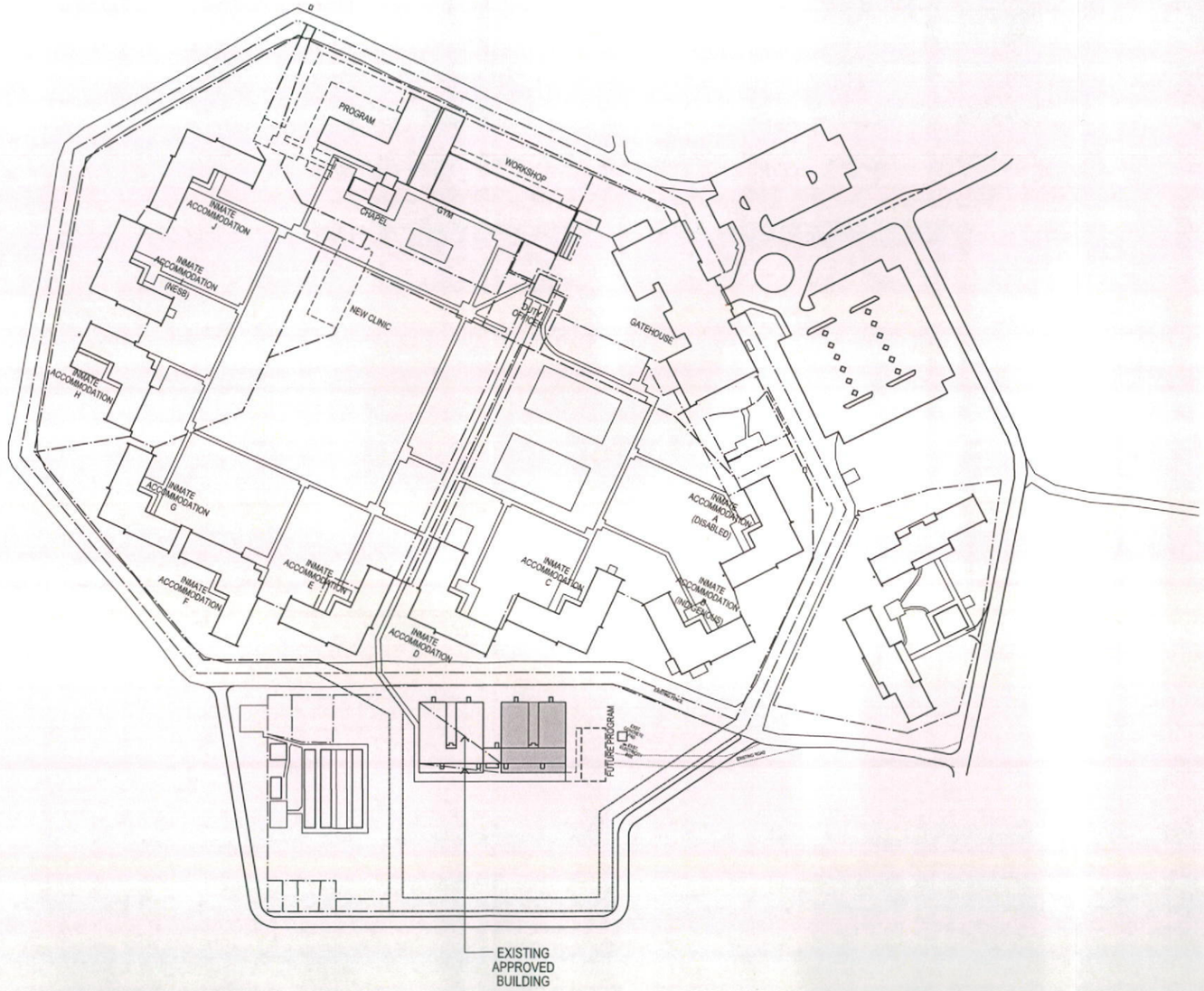
APPENDIX 2

DA Drawings



RESTRICTED

PLOTFILE DATE: 1/05/2015 PLOTFILE TIME: 10:54:28 AM

AMENDMENTS			
REV	BY	DATE	DESCRIPTION
-	PPA	01.05.15	CA ISSUE

NOTE :
1. ALL EXISTING SITE INFORMATION TO BE CONFIRMED.

LEGEND :
PROPOSED DEVELOPMENT (SUBJECT TO DA)

NSW DEPARTMENT OF CORRECTIVE SERVICES

NSW GOVERNMENT Public Works Project Management
SYDNEY REGION
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A division of the Department of Finance and Services.
MICHAEL COUTTS-TROTTER
Director General

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PERUMAL PEDAVOLI ARCHITECTS

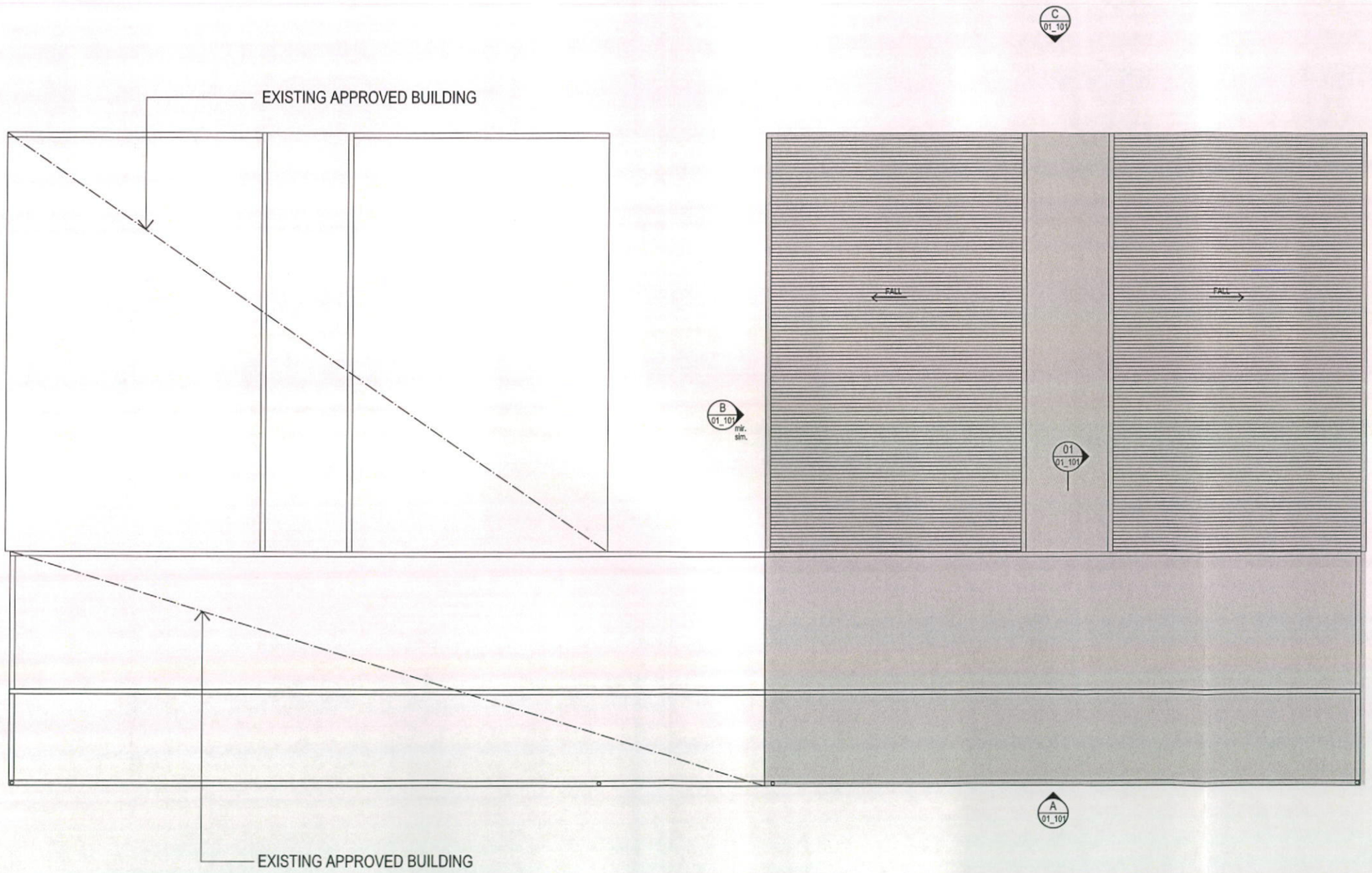
JOHN MORONY CORRECTIONAL CENTRE DEMOUNTABLES

OVERALL SITE PLAN

NORTH

0 10 20 30 40 50 100m
SCALE 1:1000 @ A1
01 MAY 2015

DRAWING NUMBER				REVISION
PROJECT	DISCIPLINE	PHASE	ISSUES NUMBER	
JM2	ARC	DA	_00_001	-



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AMENDMENTS			
REV	BY	DATE	DESCRIPTION
-	PPA	01.05.15	DA ISSUE

NOTE :
1. ALL EXISTING SITE INFORMATION TO BE CONFIRMED.

LEGEND

PROPOSED DEVELOPMENT (SUBJECT TO DA)

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JOHN MORONY CORRECTIONAL CENTRE DEMOUNTABLES

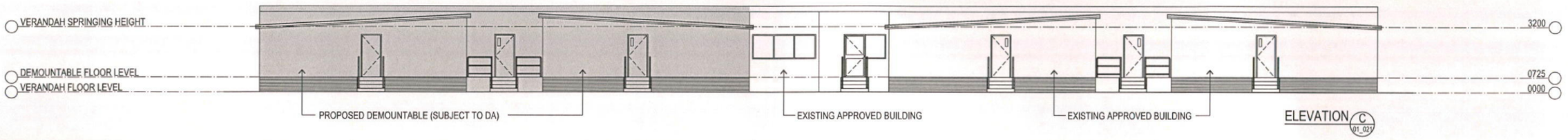
DEMOUNTABLE ACCOMMODATION ROOF PLAN

NORTH

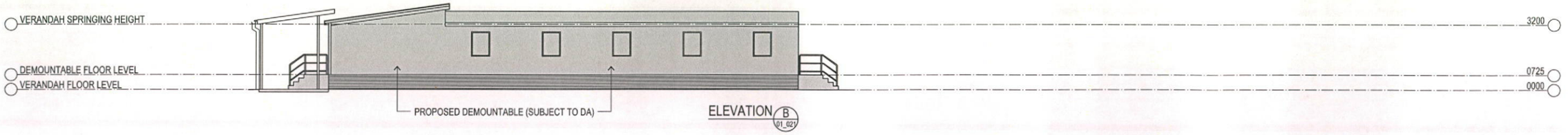
0 1 2 3 4 5 10m
SCALE 1: 100 @ A1
01 MAY 2015

DRAWING NUMBER				
PROJECT	DISCIPLINE	PHASE	ISSUED NUMBER	REVISION
JM2	ARC	DA	_01_021	-

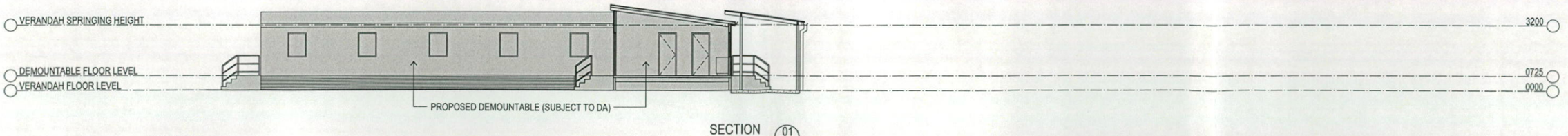
ELEVATION A 01_021



ELEVATION C 01_021



ELEVATION B 01_021



SECTION 01 01_021

RESTRICTED

PLOTFILE DATE: 1/05/2015 PLOTFILE TIME: 10:56:15 AM

AMENDMENTS

REV	BY	DATE	DESCRIPTION
-	FPA	01.05.15	CA ISSUE

NOTE :
1. ALL EXISTING SITE INFORMATION TO BE CONFIRMED.

LEGEND

PROPOSED DEVELOPMENT (SUBJECT TO DA)

NSW DEPARTMENT OF CORRECTIVE SERVICES

NSW GOVERNMENT Public Works Project Management

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PERUMAL PEDAVOLI ARCHITECTS

JOHN MORONY CORRECTIONAL CENTRE DEMOUNTABLES

DEMOUNTABLE ACCOMMODATION - ELEVATIONS AND SECTIONS

0 1 2 3 4 5 10m
SCALE 1:100 @ A1
01 MAY 2015

DRAWING NUMBER				REVISION
PROJECT	DISCIPLINE	PHASE	SERIES NUMBER	
JM2	ARC	DA	01_101	-

B B C
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APPENDIX 3

Bushfire Assessment Report

Bushfire Safety Solutions

Bushfire Engineering & Design Services

Bushfire Management Report

John Morony Correctional Centre

Berkshire Park NSW

Report prepared by **Bushfire Safety Solutions**

Report No: 2014/07A

Client: BBC Consulting Planners

Date: March 2014

Document Release History

Date	Report Number	Pages Affected
10 March 2014	2014/07A – Draft Copy for Comment	
26 March 2014	2014/07A – Final Copy	

Contents

Part 1

1.0 Introduction

The purpose of this Report is to prepare a bushfire management assessment of proposed additions to the John Morony Correctional Centre complex located upon Lot 1 DP 740367 The Northern Road Berkshire Park.

The assessment looks at the compliance provisions in Planning for Bushfire Protection 2006 (PBP 2006) regarding asset protection zones and general bushfire protection measures that may be undertaken to ensure a high level of bushfire impact protection is provided to the proposed new additions.

The Report has been compiled using information provided by the Client, bushfire prone land mapping provided by Hawkesbury City Council and the New South Wales Rural Fire Service.

1.2 Scope of Report

This report addresses the following issues:

- A bushfire management assessment for the John Morony Correctional Centre in accordance with the requirements of Planning for Bushfire Protection 2006;
- Recommendations for bushfire management of an asset protection zone in accordance with Planning for Bushfire Protection 2006.

1.3 Property Details

Lot 1 DP 740367 The Northern Road Berkshire Park.

Plate 1 – John Morony Correctional Centre Locality Map

The John Morony Correctional Centre is located within an area of extensive category 1 bushfire prone vegetation. The Correctional Centre site has relatively uninterrupted bushfire hazard exposure to the northern, southern and eastern aspects.

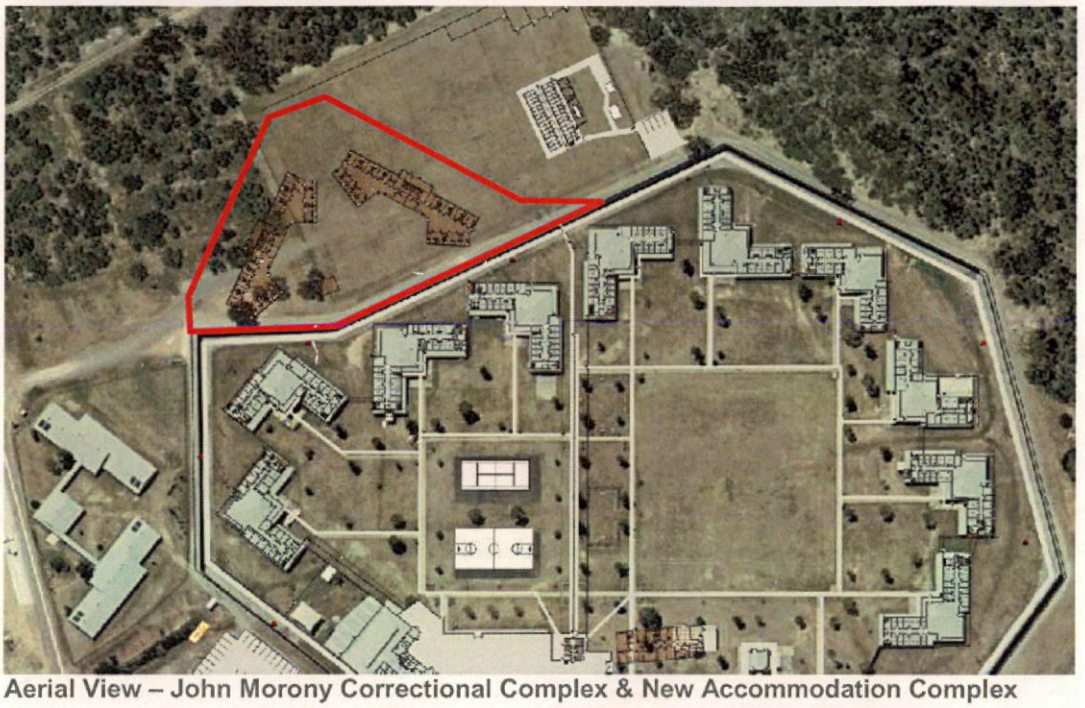
Plate 2 – General Site Access Road

Part 2

2.0 Development Description

The John Morony Correctional Complex is a series of correctional complexes located predominately in the south eastern portion of the site. The perimeter of the lot is bordered by bushfire prone vegetation as described in the Penrith City Council's Bushfire Prone Land Map.

The proposed new addition to the complex involves the construction of a new accommodation units located on the north western portion of the existing complex.



Aerial View – John Morony Correctional Complex & New Accommodation Complex

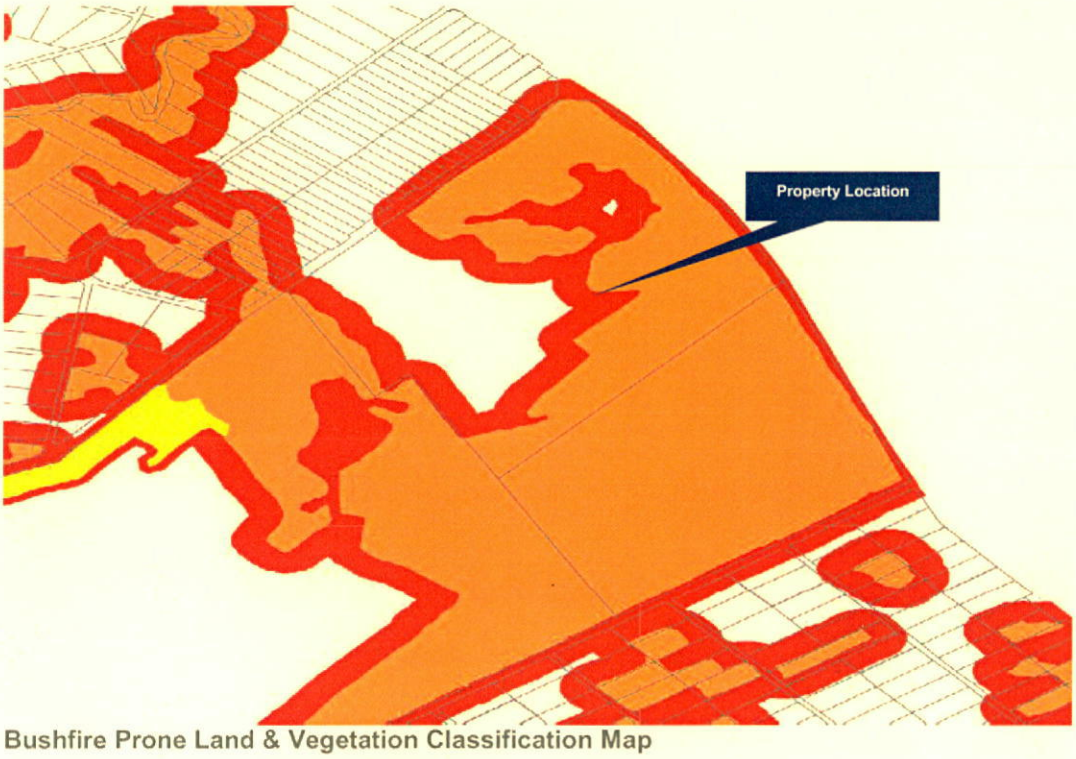
2.1 Building Classification – Part A3.2 (BCA)

The John Morony Correctional Centre has various building classifications with the proposed new accommodation complex classified as Class 3 (Detention Centre accommodation) in accordance with Part A3 of the BCA. The type of construction for the Class 3 building would not require any fire resistance levels for external walls given the location of the building and its relationship with surrounding fire source features.

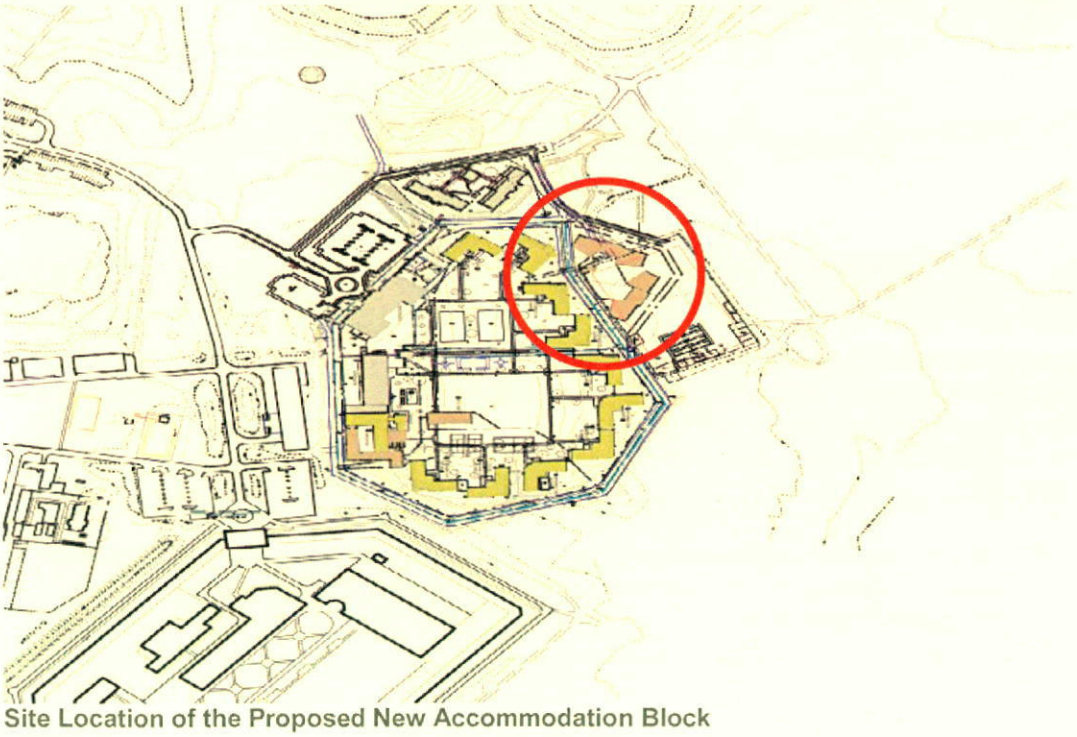
The complex also comprises many other building classifications however, the focus of this bushfire management assessment is only related to the proposed new accommodation building and the adjoining bushfire prone vegetation to the north west and north of the new building location.

2.2 Bushfire Hazard Rating

Penrith City Council's bushfire prone land mapping has designated the John Morony Correctional Centre location as being within a category 1 bushfire prone area with predominantly forest composition.



Bushfire Prone Land & Vegetation Classification Map



Site Location of the Proposed New Accommodation Block

A site assessment carried out on 21 February 2014 has revealed that the current bushfire prone land mapping of the area has not altered significantly to that of the current Council's Bushfire Prone Land Map dated 1 April 2009 with the area to the north and east of the new accommodation complex remaining generally rated as category 1 bushfire prone area.

2.3 Planning for Bushfire Protection Bushfire Threat Assessment 2006

Based on the bushfire hazards to the north and east of the proposed accommodation complex, the vegetation within the northern and eastern aspects is estimated to have a steady state bushfire fuel accumulation of approximately 25t/ha on average. The composition of the forest vegetation is a mix of mature tree stands and saplings with a variable understorey.

The spread of bushfires in the Berkshire Park area generally relies on wind direction and strength as the limiting factor to move the fire through the native vegetation areas of the Berkshire Plains.

The predominant bushfire wind is from the north west, west and is generally a dry air movement that has the potential to create significant bushfire events that threaten property.

The subject development site is a relatively flat topography location, therefore severe bushfire events are subsequently reliant of strong winds, sufficient fuel accumulations, low humidity and high air temperatures to create the environment for significant bushfires to occur.

The principle strategies to protect the proposed accommodation complex, based on its location to the northern and eastern aspects is to construct and subsequently manage a suitable sized asset protection zone to isolate the vegetation interface away from the development so as to achieve a satisfactory radiant heat flux rating at the receiver (i.e. the building interface) that will not threaten the building occupants.

2.4 Asset Protection Zone Compliance

Asset protection zones are a fundamental passive bushfire protection strategy that separates a particular asset (e.g. a building) from the bushfire prone vegetation interface. Asset protection zones are formulated on land slope, aspect, vegetation structure and other miscellaneous environmental characteristics.

The New South Wales Rural Fire Service has developed an extensive bushfire compliance regime based on asset protection zones that includes mandatory separation distances for the particular categories of development.

Classes of buildings captured by PBP 2006 and the BCA include Class 1 (a & b), 2, 3 4, 9 (a, b & c) and Class 10a structures requiring mandatory bushfire protection measures be installed at the commencement of the development stage.

Table A3.3 in PBP 2006 outlines the minimum standard for asset protection zone separation and this standard forms the deemed to satisfy compliance benchmark for separation between asset and the interface of bushfire prone vegetation.

The current layout of the site permits an asset protection zone (APZ) extension to the north and east of the development site so as to reduce the radiant heat flux rating of any bushfire event at the receiving point of the new buildings.

The minimum separation distance required to achieve a Bushfire Attack Level (BAL) rating that would be within acceptable limits to the safety of occupants is in the range of 60m to 70m depending on the final building location and the effective slope out to 140m from the bushfire prone building interface.

2.5 Bushfire Design Analysis

For the purposes of analyzing the bushfire design model for any potential bushfire events in and around the proposed new accommodation complex, the design bushfire analysis notes that there are two principle bushfire attack aspects which have common bushfire hazard characteristics that may produce potentially similar bushfire impacts during a severe bushfire event.

Whilst noting these common bushfire hazards, severe to catastrophic bushfire behaviour could eventuate from the north western and northern aspects of the John Morony Correctional Centre site.

The design bushfire analysis utilizes similar modeling criteria for each aspect such as:

- The risk of a bushfire event affecting the site has been assessed from the north western aspect as shown over;
- Semi managed forest vegetation characteristics to the north, worth western aspects (estimated to be in the range of 25t/ha^{+});
- Separation distances between the surrounding vegetation interface and the Correctional Centre perimeter yard fence to the north west and northern aspect;
- Potential for spot fires from the north western aspects which may result in fire entering the Correctional Centre site; and,
- General land slope taken as 0^0 to 5^0 slope through the northern axis of the site.

Based on the above site information and Table A2.7 of Planning for Bushfire Protection 2006 states that the minimum separation distance from the proposed accommodation complex to the existing vegetation interface is required to be approximately 70m (worst case scenario) and is therefore recommended as the minimum separation distance from all new building elevations to the adjoining bushfire prone vegetation interface.

Summary – Bushfire Radiant Heat Flux Exposure Levels

The following table provides a summary of the radiant heat flux exposure levels to each of the northern and eastern aspects.

Aspect	Average Separation in Metres	Average Land Slope - Degrees	Hypothetical RHF Rate (kW/m^2)
North Western Aspect	Not less than 70m	Average 5^0 down slope	10.00
North Eastern Aspect	Not less than 70m	Average 5^0 down slope	10.00
Eastern Aspect	Not less than 70m	Average 5^0 down slope	10.00
South Eastern Aspect	>72m	5^0 down slope	10.00

The dominant radiant heat flux of a maximum of $10kW/m^2$ technically has an overarching influence on the north western and south western aspects of the development and therefore any bushfire management strategies for the *whole site* will need to include protection measures that are capable of long term maintenance of the $10kW/m^2$ radiant heat flux levels.

Recommended Bushfire Protection Measures

Bushfire protection for buildings in **BAL10** maximum bushfire risk locations often include either one or combinations of the following measures:

- Non combustible construction using fire rated building materials;
- Bushfire resistant design techniques including site positioning techniques, reduced radiant heat exposure to susceptible elevations, roof design modifications and the like;
- Construction of separation zones (asset protection zones) between the asset and the vegetation interface; and,
- Landscaping and hard stand areas around the curtlidge of a building.

All of these measures have evolved over a period of time from the application of fire engineering principles ordinarily reserved for buildings not affected by bushfires but rather from themselves in the advent of fire originating from within the building.

The John Morony Correctional Centre is capable of being provided with passive bushfire protection measures that, as a standalone strategy, will provide sufficient enough protection of the facility based on the level of likely bushfire threat from the prominent bushfire threat aspects.

Recommended Bushfire Protection Measures

It is recommended that the following bushfire protection measures be considered as part of a *whole of site* bushfire protection strategy and includes:

1. The additional asset protection zone is recommended to be maintained in accordance with the construction standards of an Outer Protection Zone whereby combustible fuel levels are no greater than 8t/ha.

2. The existing asset protection zone within the managed areas of the northern and eastern aspects of the proposed development area to be maintained as an Inner Protection Zone;

3. The existing and proposed asset protection zone is recommended to be managed in accordance with the Bushfire Management Plan as described on page 16 of this Bushfire Management Plan.

4. Where separate recommendations for select areas of sensitive vegetation to be preserved are located within the maximum 70m APZ, the selected areas should be maintained to maximum fuel levels of no greater than 8t/ha of combustible fuels.

2.6 Conclusion

The bushfire management assessment of the new additions to the John Morony Correctional Centre accommodation complex has been undertaken to ascertain what level of passive bushfire protection measures can be retrofitted to the complex so as to improve the capacity of the development to resist the passage of a bushfire in and around the general site location.

The reliance on the proposed expanded asset protection zone as the primary bushfire protection measure is considered to be a sufficient level of protection for the new accommodation building.

The passive bushfire protection measures outlined in this assessment, together with an ongoing bushfire management plan of the newly constructed APZ, will assist in providing a high degree of bushfire protection for the John Morony Correctional Centre accommodation complex and allows for an increased level of bushfire protection than the current single protection measure (i.e. the existing asset protection zone).

Signed:  Dated: 26 March 2014

Steve Parrott – MAIBS

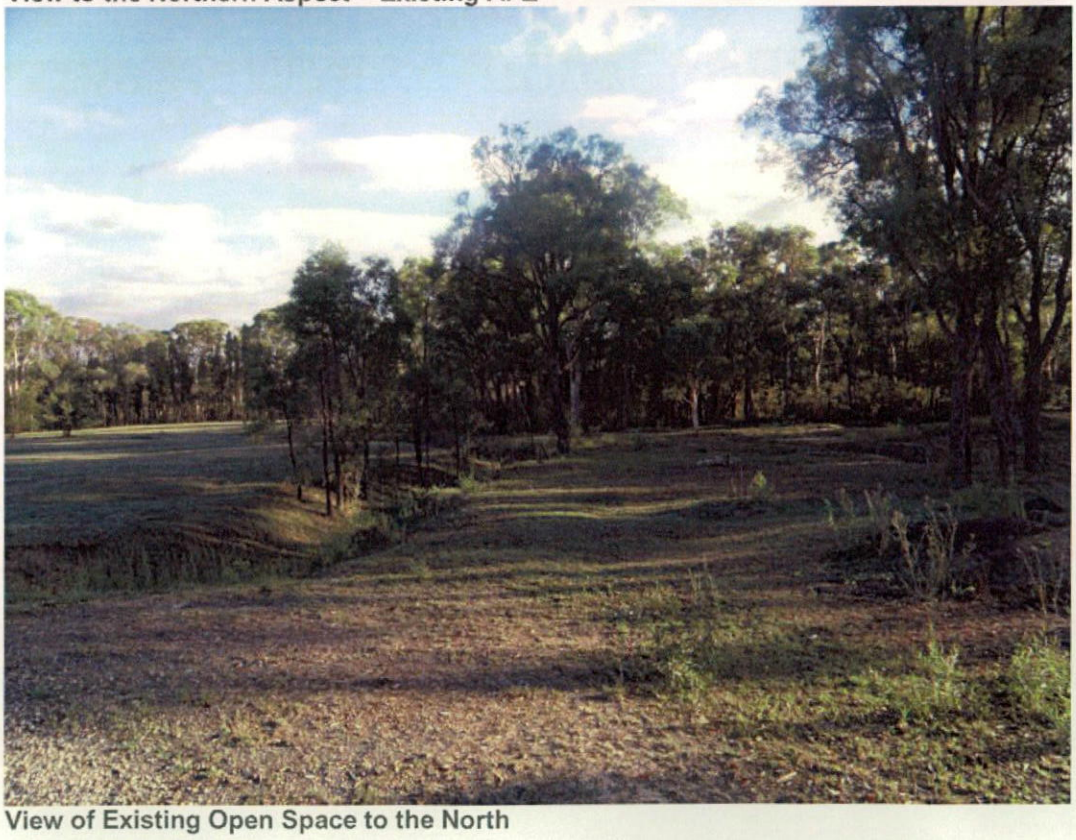
Bushfire Safety Solutions

Site Photographic Record

South Eastern View of existing Asset Protection Zone

General View of the site to the Northern Aspects

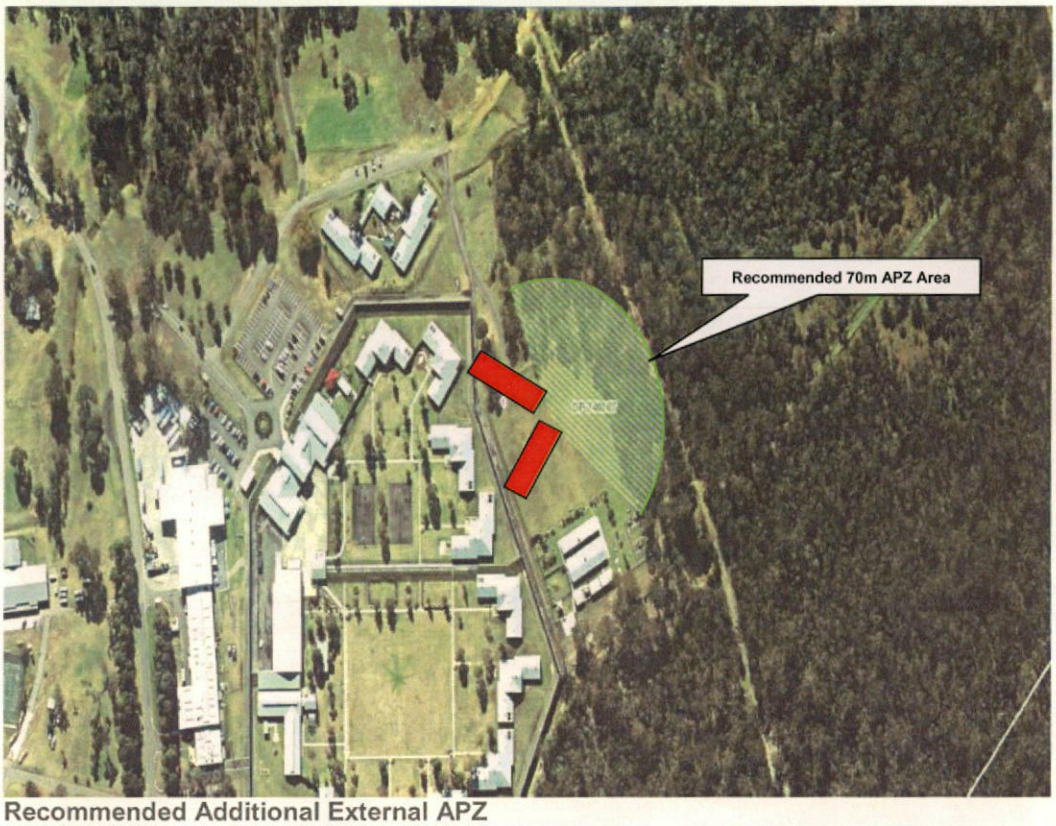
View to the Northern Aspect – Existing APZ



View of Existing Open Space to the North

Recommended Bushfire Management Plan and Asset Protection Zone Works

Recommended Asset Protection Zone Location



Recommended Additional External APZ

It is recommended that the minimum APZ separation distance from the external building curtlidge of each block be 70m as generally indicated above and be constructed to a minimum standard of an Outer Protection Zone with fuel levels of no greater than 8t/ha.

The proposed 70m APZ is to be managed in accordance with the general requirements of the Ecological Assessment Report. Where areas of endangered or protected species are recommended to remain intact, as per any separate recommendations made by others, these areas are to be managed for combustible fuel levels that do not exceed 8t/ha at any one time.

A detailed APZ specification is outlined in the following table of works for the proposed APZ .

APZ Construction Specification

Recommended APZ Construction and Management Strategy	Risk Treatments	Implementation
Asset Protection Zone Construction Specification	Undertake annual bushfire fuel management hazard reduction to all aspects of Lot. APZ to be manually managed for bushfire fuel reduction to maximum average of 5 - 8t/ha. External APZ construction to include: • Hand weeding and raking only around significant flora and fauna protected areas to be undertaken. • Remainder of APZ to be maintained by mechanical methods including mowing and slashing • Any mechanical clearing work is to be constructed to ensure that regeneration of the vegetation is not compromised. • APZs recommended to be maintained in accordance with PBP 2006 Appendix 5 and the NSW RFS Standards for Asset Protection Zones and Council's document "Specification for Mechanical Fire Mitigation Works". a. Any proposed hand removal and pruning of trees, shrubs and understorey, to which this specification refers, is to include the following work: • Pruning or tree removal to achieve discontinuous tree canopies, with crowns separated by 2 – 5m; • Pruning of mature trees is to be used in preference to their removal; • Removal of saplings to avoid the creation of continuous tree canopy; • Skirting (crown lifting) is to be used to separate the tree canopy from the ground or shrub fuels by 1-2m; • Pruning and skirting is to be done in accordance with AS4373-1996 Pruning of Amenity Trees; • Where tree removal is necessary, smooth barked trees are to be retained in preference to rough barked species; • Noxious or environmental weeds and non-native woody plants should be removed in preference to other species; • Locally common species should be removed in preference to species considered locally or regionally significant; • Non-habitat trees should be removed in preference to habitat trees, and, • Open grass areas to be maintained between 5 – 10cm at all times. • Grass cuttings to be mulched to eliminate surface accumulations. • The recommended APZ Management Plan is to be reviewed every three years to ensure the plan is achieving its objectives.	Contractor at least once per annum. Once every two years. Contractor once every three weeks during declared Bushfire Season, then as required so as to meet APZ specifications.

Note: Where separate recommendations are made for sensitive areas of native vegetation to remain intact within the proposed APZ, the management of these areas is to be maintained in accordance with these recommendations.

References

AS 3959 (Construction of Buildings in Bushfire Prone Areas) - 2009.

Building Code of Australia Volume 1 - 2013.

CFA – Victoria – Bushfire Construction Materials

Google Maps

Six Maps

NSW Rural Fire Service – Guidelines for Asset Protection Zones (June 2003).

Planning for Bushfire Protection 2006 – NSW Rural Fire Service.

Conditions of Use

This Report is copyright protected and can only be utilised by the Client for the purposes of this development proposal and is not available for use or to be copied in any form by others not authorised by **Bushfire Safety Solutions**.

This Report is a recommended *bushfire management plan* only and provides a context for the development of a suitable asset protection zone to enable the proposed development to meet a certain BAL rating to permit the development to proceed in accordance with the requirements of Planning for Bushfire Protection 2006.

It is a condition that the use of this Report is only vested in the Client upon final payment of the Report fee.

The recommendations provided in the report generally respond to the requirements of Planning for Bushfire Protection 2006.

Disclaimer

This report is provided in good faith and is based on information supplied for the development by the Client.

Bushfire behaviour is an unpredictable phenomenon and is often erratic under extreme weather conditions.

All care has been taken in the preparation of this report and recommendations provided therein. Site conditions, vegetation regrowth and maintenance of asset protection zones are not regulated and therefore may not be maintained in perpetuity to ensure adequate separation between the assets and the bushfire prone vegetation.

Bushfire Safety Solutions accepts **no** liability for any ongoing bushfire threat to the property or maintenance of the bushfire protection measures provided to the development or any loss of any building or structure associated with this development.

It is the responsibility of the owner of the property to maintain bushfire protection of the property at all times.

B B C
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APPENDIX 4

Flora and Fauna Report

Flora & Fauna Impact Assessment

for

Additions to the Multi-Purpose Correctional Centre, John Morony Correctional Complex

at

The Northern Road, Birkshire Park

By

Nicholas Skelton, B. Sc. (Hons), M. App. Sc.

and

Jane Williamson B. Env. Sc (Hons), M. Wld Mgmt

March 2014

Prepared for

NSW Department of Attorney General and Justice

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Email: ecology@ecology.net.au Web: www.ecology.net.au

Executive Summary

This report describes the flora and fauna that occur at the site of the proposed additions to the Outer Metropolitan Multi-Purpose Correctional Complex within the John Morony Correctional Complex on The Northern Road at Birkshire Park, and determines the importance of the land to the conservation of Threatened Flora and Fauna Species, Populations and Ecological Communities. The impact the proposed development is likely to have on the ecological conservation values is assessed and discussed, and then recommendations to ameliorate the ecological impact of the development are made.

The Site is the land to the east of the existing Multi-Purpose Complex and to the north of the existing RSPCA Kennels. The Location and context of the property and the site are shown on Maps 1, 2, 3, and 4. The Site currently contains a fenced playing field, an unsealed boundary track and an Asset Protection Zone for bush fire protection of the adjacent accomodation. Windsor Downs Nature Reserve is adjacent to the property to the North East and Castlereagh Nature Reserve is to the south-west.

Field survey concluded that the bushland vegetation in Areas 1, 2 and 4 do not meet the definition of any Endangered Ecological Community from the TSC Act 1995 or the EPBC Act 1999. Areas 3 and 5 do meet the definition of Castlereagh Scribbly Gum Woodland Vulnerable Ecological Community and are in fair and good condition respectively.

The survey area contains fifty-six (56) native plant species (including three (3) Threatened plant species), seven (7) exotic plant species, one (1) amphibian species, nine (9) bird species, three (3) mammal species and two (2) reptile species.

The disturbance of the vegetation at the site and immediately adjacent to the proposal is five types (See Maps 5, 6 and 7). The proposal will result in a loss of 150m^2 of fair quality Castlereagh Scribbly Gum Woodland VEC from Area 3 due to the construction. 1500m^2 of scattered remnant trees (not Threatened) will be lost from Area 2 due to the construction. 385m^2 of re-growing bushland (not Threatened) will be thinned in Area 4 for the establishment of an APZ around the new dwelling. The remaining bushland in Areas 2 and 3 is already disturbed, either for APZ or un-sealed roads, and there will be no change to the management of these Areas. Area 5 will not be disturbed by the proposal but it is immediately adjacent to the proposal.

The proposal is for additions to the existing Outer Metropolitan Multi-Purpose Correctional Centre, including: the construction of new secure residential accommodation to increase overall capacity from 300 to 324 inmates; a new officer post; upgrade to existing facilities (including extensions to the programs building and a new clinic); a separate kitchen workers area; new perimeter fencing; new movement control areas, covered walkways, new extended perimeter vehicle track and associated stormwater and drainage works. The proposal will require native vegetation on the north-eastern boundary to be removed and areas of vegetation will also need to continue to be thinned for of a bushfire Asset Protection Zone around the dwellings in accordance with the bushfire report (Bushfire Safety Solutions 2014). The most relevant parts of the proposal to ecological importance are the two new buildings and the APZ shown in Maps 5, 6 and 7.

A Threatened Flora Species, *Micromyrtus minutiflora* occurs within the APZ of Area 3 that will continue to be managed as an APZ. Two (2) Threatened plant species, *Dillwynia tenuifolia* and *Persoonia nutans* occur immediately adjacent to the disturbance area in Area 5 (see Map 6 and 7). Assessments of Significance (7-part tests) were performed for these species, which conclude that the proposal will not have a significant impact on any of the Threatened plants.

No Threatened fauna species were found or are likely to have important habitat on the site, during the field survey.

The proposal will remove 150m^2 of Castlereagh Scribbly Gum Woodland VEC and there will be no additional impact to any other Threatened species or ecological communities. The proposal will not have any impact on any Threatened species, population or ecological communities and further assessment in the form of a Species Impact Statement (SIS) is not required.

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1 Introduction

1.1 Background

This report describes the flora and fauna that occur at the site of the proposed additions to the Outer Metropolitan Multi-Purpose Correctional Complex (OMPCC) within the John Morony Correctional Complex on The Northern Road, Berkshire Park, and assesses the importance of the land to the conservation of Threatened flora and fauna species, populations and ecological communities. The impact the proposed development is likely to have on the ecological conservation values is then assessed and discussed. This report also makes recommendations to ameliorate the ecological impact of the development.

An accurate description of the flora and fauna and the assessment of the impact is required when assessing the environmental impacts of proposals with respect to the: Environmental Planning and Assessment Act 1979, Rural Fires Act 1997 and the Threatened Species Conservation Act 1995 (TSC Act 1995). The information in this report may also be needed to assess the development with respect to other acts, policies and regulations such as the Fisheries Management Act 1994, Noxious Weed Act 1993, Native Vegetation Conservation Act 1997, Acid Sulphate Soil Potential regulations, Coastal Wetlands (SEPP 14), Bushland in Urban Areas (SEPP 19), NSW Biodiversity Strategy 1999 and other State and Federal Acts, and Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act 1999), REPs, SEPPs and local government controls, orders and policies (e.g. LEPs, DCPs).

Throughout this report "Threatened" species, populations or ecological communities refers to those biota listed in Schedules 1 and 2 of the Threatened Species Conservation Act, 1995 as "critically endangered", "endangered" or "vulnerable". A "Noxious weed" is a species of plant listed in the Schedules of the Noxious Weeds Act 1993.

1.2 Assumptions and Limitations

- This survey only assesses the impacts of the proposal described in this report and shown on the cited plans and the referenced expert report/s.
- This report does not include assessment of soil suitability or European/Aboriginal heritage values.
- This report describes the habitat and species of the site at the time of the field survey. Vegetation and habitat will change over time, as does legislation. Therefore the findings of this report are likely to be out of date in 12 months.
- All threatened species that are considered to have important habitat on the site are assumed to occur on the site.
- There may be flora and/or fauna species present at the site that were not recorded because they are seasonal, cryptic and/or have large home ranges. It can never be proven that other threatened species have not, do not or will not use the site as habitat.
- The conclusions drawn in this report are a result of testing, observation and experience.
- This report should be read in its entirety and no part should be taken out of context.
- This report does not include assessment of the ongoing impacts associated with the occupation of the land that may cause additional disturbance.

1.3 Location

The property is Lot 1 in DP 740367, known as the John Morony Correctional Complex on The Northern Road at Berkshire Park, within the Penrith City local government area. The locality is shown on Maps 1 and 2, which are a topographic map and aerial photo respectively. Maps 3 and 4 show the context of the property. The AMG co-ordinates of the site are 33°38'59.12'S and 150°47'04.09"E. The suburb of Londonderry is situated to the north-west of the site on the opposite side of The Northern Road.

The site is generally flat with the land gently sloping towards Richmond Road. The landforms of the area are characteristic of a depositional basin, being low-lying plains and gently undulating hills. Although the underlying bedrock of the Cumberland Plain is primarily Wianamatta Group shales and sandstones, complex patterns of erosion and deposition have resulted in a number of geographically restricted substrates and a mosaic of soils within the area. The area is located on Tertiary alluviums producing relic red podsolic soils of the Londonderry clay which are characteristic of a broad area of the Cumberland

Plain.

There are five (5) Endangered Ecological Communities recorded within the area: Cooks River Castlereagh Ironbark Forest EEC; Castlereagh Scribbly Gum Woodland VEC; Shale/Gravel Transition Forest EEC; Castlereagh Swamp Woodland EEC and Shale Palins Woodland EEC (Tozer, 2006).

1.4 The Subject Site and Study Area

The Subject Site (the Site) is the Study Area and is the area directly or indirectly impacted by the proposal, which is the area within the new fence, the vehicle boundary track and the Asset Protection Zone (APZ) to protect the dwellings from fire. This area is generally the land to the east of the existing Multi-Purpose Correctional Centre and to the north of the existing RSPCA Kennels and playing oval as shown in Maps 3, 4, 5 and 6. The history of disturbance to the vegetation is classified into five (5) types and shown in Maps 5, 6 and 7.

This area is a grassed oval in the eastern part of the site that has been filled, leveled and fenced to make a playing field that is regularly mown and used for walking dogs. There is no remnant native vegetation within this area.

Area 2 is currently managed as an APZ with the shrub layer regularly slashed to reduce fuel loads. The area contains extensive disturbance due to vehicle tracks, dumping of fill, vegetation removal, weed spread, and installation of drainage pipes and open drains. There are some remnant native trees with virtually no canopy, native shrubs or ground cover. This area is flat but the soil surface is uneven. This patch contains some of the tree species that are characteristic of the Castlereagh Scribbly-gum Woodlands Vulnerable Ecological Community, however the floristics and the structure of the vegetation is so highly disturbed that it is not longer considered bushland and no longer resembles any native ecological community. This Area has very low low resilience and cannot recover to a native ecological community.

Area 3 is currently managed as an APZ with the shrub layer regularly slashed to reduce fuel loads. It contains regularly hand slashed Castlereagh Scribbly Gum Woodland VEC in moderate condition containing a woodland of *Eucalyptus sclerophylla* (Hard-leaved scribbly gum) and *Angophora bakeri* trees, and native species in the tree and ground structural layers but has no shrub canopy due to frequent slashing. Due to the type of disturbance, it is considered that this patch of woodland has moderate resilience and therefore, moderate natural recovery potential.

Area 4 contains regenerating bushland that is in poor condition despite containing native species in all structural layers. This area appears to have been heavily grazed in the past and the mixture of plant seeds no longer meets the definition of CSGW VEC. This area is to the north of the drainage ditch that runs across the site. Due to this past disturbance, it is considered that this patch of woodland has low resilience and therefore, low potential to naturally recover to a VEC.

Area 5 contains Castlereagh Scribbly Gum Woodland VEC in good condition and contains native species in all structural layers and is beyond the APZ, more than 70m from the new facilities. This area is to the north-east of the un-sealed road and drainage ditch, a good barrier, and will not be disturbed by the proposal but it is immediately adjacent to the proposal. Due to the low level of disturbance, it is considered that this patch of bushland has high resilience.

Map 1. Locality

Additions to the Multi-purpose Complex John Morony Correctional Centre, The Northern Road, Berkshire Park

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1.5 Adjacent Land Use

The land surrounding the Site is within the John Morony Correctional Centre, built in 2004 on land that was formerly a farm. It has extensive areas of existing bushland around the edges of the property. The rest of the prison complex is to the west, and to the south, east and further west of the property is bushland that is in mostly good condition. Much of the land adjacent to the property is bushland (See Maps 2 and 3). The site has a frontage to The Northern Road to the north and to Richmond Road to the east.

To the south of the site, beyond Llandilo Road are rural and semi rural properties with remnant bushland patches.

Windsor Downs Nature Reserve is situated to the North East of the site and covers an area of 410 hectares (See Maps 1, 2, 3 and 4). This nature reserve protects four (4) Threatened plant species including *Dillwynia tenuifolia, Pultenea parviflora, Persoonia nutans* and *Grevillea juniperina*. The Threatened Regent Honey-eater (*Xanthomyza Phrygia*) has also been recorded within the reserve. The reserve also contains one of the last remnants of the original Cumberland Plain Woodland Critically Endangered Ecological Community. Five Endangered Ecological Communities have been recorded within the reserve, Cooks River/Castlereagh Iron Bark Forest EEC; Castlereagh Scribbly Gum Woodland VEC; Shale Gravel Transition Forest EEC; Castlereagh Swamp Woodland EEC and Shale Plain Woodland EEC.

The former Castlereagh Waste Management Centre is located to the south-west of the site. Castlereagh Nature Reserve is further to the south-west, which covers an area of 490 hectares. This Nature Reserve is located on the Cumberland Plain, and contains Castlereagh Swamp Woodland EEC and one of the last remnants of the original Cumberland Plain Woodland Critically Endangered Ecological Community. At least six (6) plant species listed under the Threatened Species Conservation Act, including *Dillwynia tenuifolia, Pultenea parviflora, Acacia bynoeana, Allocasuarina glareicola, Persoonia nutans* and *Mycromyrtus minutiflora,* and regionally rare species *Eucalyptus sideroxylon* and *Eucalytpus longifolia* are found within the reserve. Threatened fauna species found within the reserve include the Golden Bell frog (*Littoria aurea)* and the Regent Honey-eater *(Xanthomyza Phrygia).*

1.6 Proposed Development and Likely Direct Impacts

The proposal is for additions to the existing Outer Metropolitan Multi-Purpose Correctional Centre, including the construction of new residential secure accommodation to increase overall capacity from 300 to 324 inmates; a new officer post; upgrade to existing facilities (including extensions to the programs building and a new clinic); a separate kitchen workers area; new perimeter fencing; new movement control areas, covered walkways, and associated stormwater and drainage works. The proposal will require native vegetation on the north-eastern boundary to be removed and areas of vegetation will also need to be removed/thinned for establishment of an bushfire protection around the dwellings (The proposal is shown on Maps 5, 6 and the impact to the vegetation is shown on Map 7).

The proposal is predominantly located on land that has already been cleared or disturbed for other purposes in the past or is part of an existing APZ.

1.6.1 Establishment of an Asset Protection Zone

The Bushfire Management Report (Bushfire Safety Solutions 2014) looks at the compliance provisions in Planning for Bushfire Protection 2006 (PBP 2006) regarding asset protection zones and general bushfire protection measures to be undertaken to ensure a high level of bushfire impact protection is provided to the new dwellings within this designated 'category 1 bushfire prone' area.

The Bushfire Management Report (Bushfire Safety Solutions 2014) states:

> *"it is recommended that the minimum APZ separation distance from the external building curtlidge of each block shall be 70m and be constructed to a minimum standard of an Outer Protection Zone with fuel levels of no greater than 8t/ha"*
>
> The Bushfire Management Report recommends the following Risk Treatments:
>
> - *"Undertake annual bushfire fuel management reduction to all aspects of the lot;*

- *APZ to be manually managed for bushfire fuel reduction to maximum average of 5-8t/ha;*
- *External APZ construction to include:*
  - *Hand weeding and raking only around significant flora and fauna protected areas to be undertaken,*
  - *Remainder of APZ to be maintained by mechanical methods including mowing and slashing,*
  - *Any mechanical clearing work is to be constructed to ensure that regeneration of the vegetation is not compromised,*
  - *APZs recommended to be maintained in accordance with PBP 2006 Appendix 5 and the NSW RFS Standards for Asset Protection Zones and Council's document "Specification for Mechanical Fire Mitigation Works",*
  - *Any proposed hand removal and pruning of trees, shrubs and understory, to which this specification refers, is to include the following work:*
  - *Pruning or tree removal to achieve discontinuous tree canopies, with crowns separated by 2-5m,*
  - *Pruning of mature trees is to be used in preference of their removal,*
  - *Removal of saplings to avoid the creation of continuous tree canopy,*
  - *Skirting (crown lifting) is to be used to separate the tree canopy from the ground or shrub fuels by 1-2m,*
  - *Pruning and skirting is to be done in accordance with AS4373-1996 Pruning of Amenity Trees,*
  - *Where tree removal is necessary, smooth barked trees are to be retained in preference with rough barked species,*
  - *Noxious or environmental weeds and non-native woody plants should be removed in preference to other species,*
  - *Locally common species should be removed in preference to species considered locally or regionally significant,*
  - *Non-habitat trees should be removed in preference to habitat trees, and*
  - *Open grass areas to be maintained between 5-10cm at all times,*
  - *Grass cuttings to be mulched to eliminate surface accumulations,*
  - *The recommended APZ Management Plan is to be reviewed every three years to ensure the plan is achieving its objectives. "*

1.6.2 Previous Surveys of the Site

A Flora and Fauna Assessment of the site was completed in 1997 by Australian Museum Business Services.

The study site was presumed to have originally contained Castlereagh woodlands. However, the history of disturbance the site resulted in the presence of three major vegetation types (1) cleared areas dominated by grasses and broad-leaved weed species, (2) highly disturbed Castlereagh woodlands containing a small number of *Eucalyptus sclerophylla* (Scribbly Gum) and patches of remnant understory, and (3) Castlereagh woodlands that appear to have been disturbed historically (probably >20 years ago). An eight part test was not conducted for an ecological community.

Four Threatened plant species were recorded on the site: *Micromyrtus minutiflora, Dillwynia tenuifolia, Acacia bynoeana* and *Persoonia nutans*. The majority of the population of these species was found to occur off-site. Eight part tests were completed for *M. minutiflora, P. nutans* and *D. tenuifolia*. Species Impact Statements were not required for any species. It was considered that the proposed development would not have a significant effect on *Micromyrtus minutiflora, Dillwynia tenuifolia, Acacia bynoeana* and *Persoonia nutans* and their habitats.

No species of Threatened fauna were observed on the site and it was considered unlikely that Threatened species would be impacted by the proposed development.

1.7 Plans and Documents Used for this Report

Google Aerial Photograph, 2005

Six Maps Aerial Photograph, accessed on 20th March 2014

Detailed Survey Plan John Morony 2 Correctional Centre, The Northern Road Berkshire Park. By Proust & Gardner Consulting Pty Ltd. Dated February 2014.

Alterations and Additions to OMMPC Site Plan. By Proust & Gardner Consulting Pty Ltd. Dated February 2014.

New Accommodation Unit Elevations. By Proust & Gardner Consulting Pty Ltd. Dated February 2014.

Bushfire Management Report, John Morony Correctional Centre. Bushfire Safety Solutions, March 2014.

Flora and Fauna Assessment of the Proposed Development Site, John Morony Correctional Centre. Australian Museum Business Services, September 1997.

2 Desk-top Assessment Methods

2.1 Literature Search Method

Relevant information was obtained from literature, scientific journals, the Internet and reports and have been incorporated into this report.

2.2 Spatial Information Search Method

Vegetation maps were searched using GIS to determine the most appropriate (including recent, detailed and accurate vegetation mapping) for this site. Aerial images were utilised to provide local context, determine wildlife corridors, features on the site, the boundaries of the site, mapping disturbance and planning fieldwork.

2.3 Flora and Fauna Records Search Method

Flora and fauna records gathered in previous nearby reports were consulted (BioNEt, EPBC database, Birds Australia Atlas and the Royal Botanic Gardens, Sydney). This information was used to ascertain which threatened species are known to occur within 5km of the site. The data were then combined with local knowledge and the habitat conditions on the site to compile a list of plant and animals species for specific targeting during the fieldwork and to be considered in the assessment. These lists are Tables 1 and 2 respectively.

3 Site Survey Methods

3.1 Flora Survey Methods

The flora field survey was carried out on the 3rd of March 2014 by two (2) experienced ecologists over twelve (12) man-hours. The weather was overcast with periods of light rain, and 21-24°C. During the flora survey the vegetation (ecological) communities that were present were classified and the presence of targeted Threatened flora species and their habitat were determined and a comprehensive plant species list was complied.

3.1.1 Vegetation Communities

During the site survey the likelihood of Endangered Ecological Communities occurring on the site was determined using structural and floristic indicators and was compared with the best available vegetation classification for the locality and the Endangered Ecological Communities listed in the TSC Act 1995 determinations. Non-endangered communities were classified according to OEH 2013 (Version 1), Keith 2011 and Tozer (2003) classification systems, based on structural and floristic characteristics.

Vegetation on the site was classified using the NSW Vegetation Information System (VIS) (OEH, version 2013) classification to determine the NSW Plant Community Type (PCT) (OEH, version 2013).

Method of Establishing if EECs Occur on this Site

To establish if any endangered ecological community occurs on the site and combination of three separate methods were used:

Mapping Method: The most accurate and up-to-date vegetation maps that are available were used to determine what is already known about the distribution of vegetation types on the site and in the locality. Sources such as National Parks and Wildlife Service (OEH) and Royal Botanic Gardens, SMCMA, Tozer (2003) and Council vegetation mapping (if available) were used however their spatial and classification accuracy is limited due to the amount of field verification that was carried out when they were made. There are often different mapping interpretations and the newest is not necessarily the best. Where more accurate local maps are not available the even less accurate Draft Sydney Metropolitan Catchment Management Authority maps (SMCMA, 2009) are used. Available vegetation maps do not provide a sufficient level of spatial accuracy for the assessment of the impact of this proposal but are useful in determining the ecological communities that are likely to occur in the vicinity. These maps are based on aerial photography and normally little field verification. They were produced for regional planning and are not of an appropriate scale for this proposal. Fieldwork is necessary to determine the site-specific vegetation mapping.

Correlation Method: between the species that occur on the site and the listed characteristic species for the Endangered Ecological Community in; the Final Determination in Part 3 of Schedule 1 of the Threatened Species Conservation Act (1995), positive diagnostic species from Tozer (2003) classification and also with the positive diagnostic species from the Draft SMCMA (2009) description were used to assist to determine if any EECs occur on the site.

Comparison Method: of the ecological features on the site to the environmental description in the legal definition of the Endangered Ecological Community in the Final Determination in Part 3 of Schedule 1 of the Threatened Species Conservation Act (1995). This comparison is essential when determining if the type of ecological community that occurs on a site is an endangered community. Not all the sections of the determinations need to apply to the site and the earlier sections are more important and should be given more weight (Preston and Adams).

3.1.2 Targeted Threatened Flora Species Search and Habitat Assessment

The targeted Threatened flora species were searched for by traversing all parts of the site by an expert ecologist with specific experience in flora identification within the Sydney Bioregion. The likelihood of occurrence for seasonal and cryptic species was assisted by habitat assessment.

3.1.3 Plant Species List Compilation

A comprehensive list of the plant species that occur in each vegetation type on the site was complied by an experienced botanist walking through all the parts of each vegetation /habitat type randomly until no new plant species are found in the habitat type for 10 minutes (method outlined by Cropper, 1993).

3.2 Fauna Survey Methods

The field survey was carried out on the 3rd of March 2014 by two (2) experienced ecologists over twelve (12) man-hours. The weather was overcast with periods of light rain and 21-24°C. During the fauna survey the presence of all fauna species and habitat were actively searched for and recorded and the suitability of the habitat for Threatened species was determined. Elliot, cage and 'harp' traps were not used due to the harm these methods cause and the availability of other detection methods.

3.2.1 Habitat Trees

Hollow bearing trees, nests and mistletoe were searched for and located using a handheld GPS.

3.2.2 Birds

Birds were identified visually and/or by calls with the aid of binoculars and a bird field guide is always available for species verification if needed. If an unknown call is heard and the bird cannot be seen, the call is recorded for later analysis by cross-referencing using comprehensive birdcall libraries.

Searches to identify nests, hollows, feathers, white wash, pellets, eggs, suitable habitat or signs of foraging were carried out. Other indicators such as feathers or regurgitated pellets were collected and taken for later analysis if necessary.

3.2.3 Arboreal mammals

Fauna field survey and identification of arboreal mammals was conducted through sightings, calls and habitat assessment. During the diurnal survey, suitable hollows, scats, remains, nests, dreys, bones, fur, scratches, tracks and food sources were activity searched for across the site. Suitable feed trees were examined for scratchings and sap-feeding notches. For targeted searches for Yellow-bellied Glider or Squirrel Glider, trees with recent V-notch incisions or other incisions are actively searched for throughout the site. Recent incisions are less than two years old and not closed (NPWS 1999b).

3.2.4 Koala Survey

Koala survey is undertaken where the site is considered to provide potential habitat under the definitions of SEPP 44 - Koala Habitat Protection, or in the presence of feed trees listed in Appendix 1 of the Recovery Plan for the Koala. Habitat may also be defined according to locally prepared Koala Plans of Management.

Where Koala habitat is considered to be present, the site will be surveyed on foot, with known Koala food trees being inspected for signs of use. Trees are inspected for characteristic scratch and claw marks on

the trunk and scats around the base of each tree. Koalas may also be targeted during nocturnal survey involving call-playback techniques and spotlighting.

3.2.5 Other Mammals

During diurnal site searches, assessment is made of 'found' scats, markings, diggings, runways and scratches located. Any scats or pellets not readily identifiable (particularly predator scats) may be collected and sent to off for identification of contents, hair or bone fragments.

Various traps may be used to survey for the presence of terrestrial mammals. These include Elliott trapping, medium and large cage trapping, small and large hair tubing and pitfall traps. Other survey methods for terrestrial mammals include the use of camera surveillance, spotlighting and activity searches. Elliot traps, harp traps and pitfall traps were not used during this survey due to the harm these cause to wildlife. No or large hair tubing Anabat detection was used during this survey.

3.2.6 Amphibians

Amphibians are surveyed by vocal call identification, call-playback, spotlighting along the edge of water-bodies, pitfall trapping, funnel trapping, by driving along sealed roads near waterways, habitat searches and collection of tadpoles. No call-playback was used during this survey.

Calls are identified in the field by the fauna surveyor. For similar calling species or if an unknown male call is heard, it is cross-matched to frog call reference libraries taken into the field. A call library of frogs occupying the NSW coastal areas is also stored into a mobile phone for a quick reference. Frog call recordings are carried into the field at all times and may be used for call-playback methods and recording calls for later analysis.

All threatened frog species were be targeted by use of call-playback techniques where suitable habitat exists, with some species more reliable than others in providing a response.

Any amphibians found are visually identified and, when required to be examined, are handled with latex gloves and kept moist until release. Any tadpoles requiring capture are collected with a scoop net and placed within a snap-lock clear plastic bag for analysis of colour and morphological features.

Amphibian survey yields best results during or following wet periods with seasonal breeding and subsequent male calling varying according each species. Targeted survey is thus undertaken in appropriate seasons.

Searches for Red-crowned Toadlet were undertaken within the site and other potential locations opportunistically found. Where pools were found, tadpole searches were undertaken at this time as well as during nocturnal surveys. Loud noises were used to evoke a call response from the Red-crowned Toadlet where suitable habitat was present.

3.2.7 Reptiles

Reptiles are surveyed opportunistically during diurnal site visit(s), but also by habitat searches and by driving along roads on humid nights

Habitat searches for reptiles are undertaken in likely localities such as under logs, rocky slabs on rock surfaces, under sheet debris, under bark exfoliations and leaf litter at the base of trees and along the edge of wetlands. Aspect and land surface thermal properties are considered to determine best search locations particularly along rocky escarpments.

During warmer months spotlighting may assist survey effort particularly during humid conditions.

No suitable habitat for the Rosenberg's Goanna occurs on the study site.

3.2.8 Invertebrates

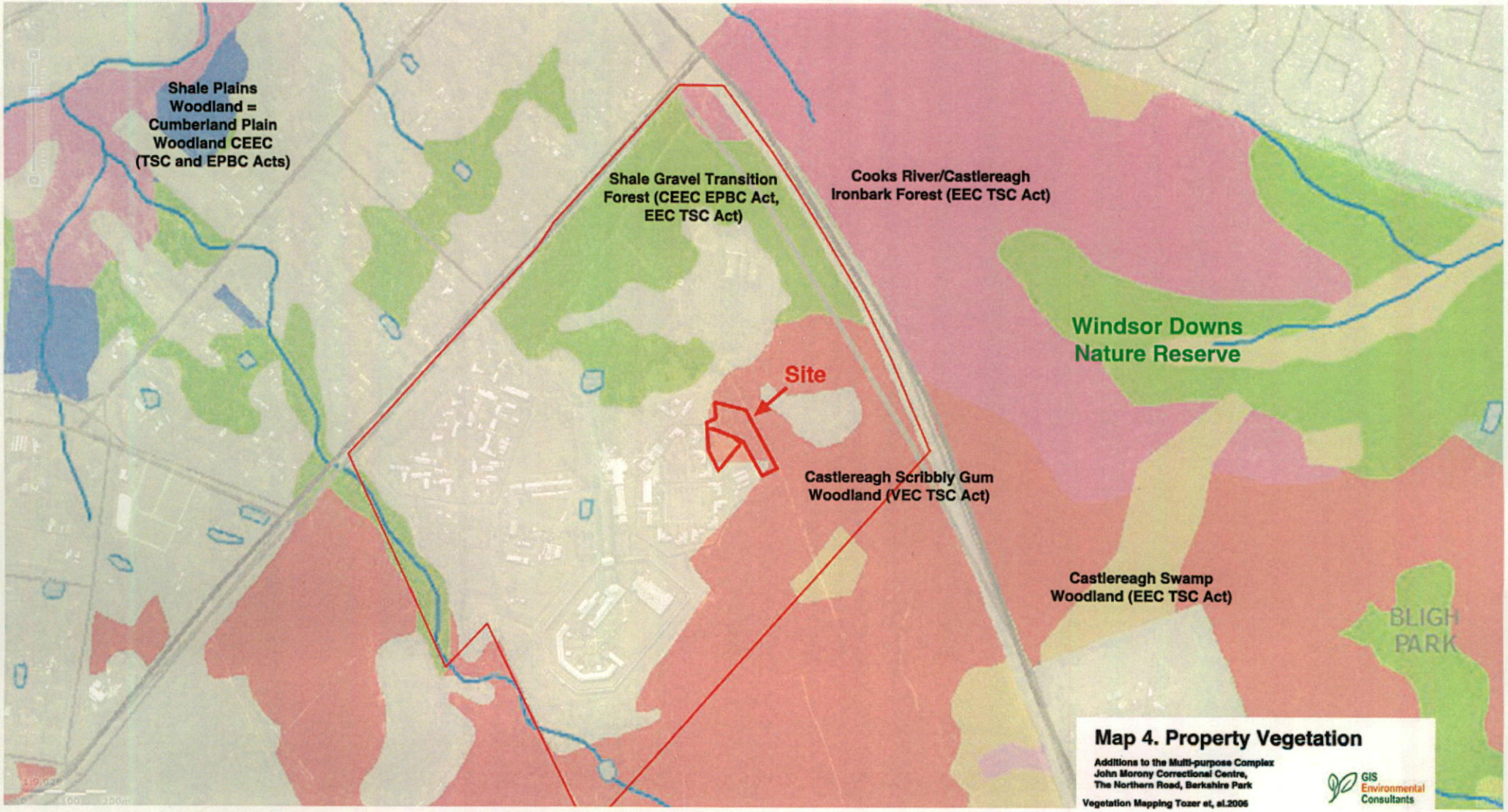
Snails were searched for at the base of trees, in leaf litter, under objects and in rubble.

3.3 Qualifications and Experience of the Field Ecologist and Authors

Nicholas Skelton's formal qualifications include a Bachelor of Science with Honours (B. Sc. (Hons) USyd) and a Masters in Applied Science (M. App. Sc. in Vegetation Management UNSW). Nick has been an environmental scientist for more than 20 years, including a university lecturer, research ecologist and consultant ecologist. His work is focused on the Sydney bioregion and he has published many papers in

independently reviewed journals on the ecology of Sydney. He has expert knowledge of the local soils, the climate of this area and the local indigenous plants and animals as a result of over 900 ecological surveys. Nick is a member of the relevant professional organisations including: a practising member of the Ecological Consultants Association of NSW, Ecological Society of Australia, AURISA, Royal Zoological Society and Birds Australia. He is licensed by OEH and NSW Department of Primary Industries to carry out surveys on threatened plants and animals and he is a qualified Biobanking certifier. Further details can be found at www.ecology.net.au. Nicks role was principal author, editor and principal field ecologist.

Jane Williamson was responsible for assisting with field surveys and report writing. Jane's qualifications include a Bachelor of Environmental Science with Honours (B Env. Sc. (Hons) (ACU)) and a Masters in Wildlife Management (Habitat) (M. Wld. Mgmt (Macq.)) and is experienced in the Flora & Fauna Impact Assessments in the Sydney bioregion.



4 Findings

4.1 Disturbance History

The land surrounding the site is within the John Morony Correctional Centre, built in 2004 on land that was formerly a farm, with extensive areas of existing bushland within the edges (See Map 3). The vegetation within the Site is made up of areas of vegetation with five (5) different types (Areas) of disturbance that are shown on Maps 5, 6 and 7.

4.1.1 Area 1. Grass Oval

This area is a grassed oval in the eastern part of the site that has been filled, leveled and fenced to make a playing field that is regularly mown and used for walking dogs. There is no remnant native vegetation within this area (See Figure 1).

Figure 1. Area 1 – Grassed Oval

4.1.2 Area 2. Scattered Remnant Trees with a Weedy Groundcover

Area 2 is currently managed as an APZ with the shrub layer regularly slashed to reduce fuel loads. The area contains extensive disturbance due to vehicle tracks, dumping of fill, vegetation removal, weed spread, and installation of drainage pipes and open drains. There are some remnant native trees with virtually no canopy, native shrubs or ground cover. This area is flat but the soil surface is uneven.

This patch contains some of the tree species that are characteristic of the Castlereagh Scribbly-gum Woodlands Vulnerable Ecological Community, however the floristics and the structure of the vegetation is so highly disturbed that it is not longer considered bushland and no longer resembles any native ecological community (See Figures 2, 3, 4 and 5). This Area has very low low resilience and cannot recover to a native ecological community.

1500m^2 of Area 2 will be lost due to the construction of the new facilities. The remaining 760m^2 of this area is already disturbed either by way of APZ or un-sealed road, and this will not change.

Figure 2. Area 2 - Scattered Remnant Trees with a Weedy Groundcover

Figure 3. Area 2 - Scattered Remnant Trees with a Weedy Groundcover

Figure 4. Area 2 - Scattered Remnant Trees with a Weedy Groundcover

Figure 5. Area 2 - Scattered Remnant Trees with a Weedy Groundcover

4.1.3 Area 3. Disturbed Castlereagh Scribbly Gum Woodland VEC, Regularly Slashed

Area 3 is currently managed as an APZ with the shrub layer regularly slashed to reduce fuel loads. It contains regularly hand slashed Castlereagh Scribbly Gum Woodland VEC in moderate condition containing a woodland of *Eucalyptus sclerophylla* (Hard-leaved scribbly gum) and *Angophora bakeri* trees, and native species in the tree and ground structural layers but has no shrub canopy due to frequent slashing (Figures 6 and 7).

Due to the type of disturbance, it is considered that this patch of woodland has moderate resilience and therefore, moderate natural recovery potential.

An area of 150m^2 of moderate quality Castlereagh Scribbly Gum Woodland VEC will be lost due to the construction of the new facilities. The remaining bushland of Area 3 is proposed to be maintained as an APZ.

Figure 6. Area 3 - Disturbed Castlereagh Scribbly Gum Woodland VEC, Regularly Slashed

Figure 7. Area 3 - Disturbed Castlereagh Scribbly Gum Woodland VEC, Regularly Slashed

4.1.4 *Area 4. Regrowth of Castlereagh Scribbly Gum Woodland*

Area 4 contains regenerating bushland that is in poor condition despite containing native species in all structural layers. This area appears to have been heavily grazed in the past and the mixture of plant seeds no longer meets the definition of CSGW VEC. This area is to the north of the drainage ditch that runs across the site.

Due to this past disturbance, it is considered that this patch of woodland has low resilience and therefore, low potential to naturally recover to a VEC (Figure 8).

An area of 385m^2 of poor quality Castlereagh Scribbly Gum Woodland VEC will be established and maintained as an APZ for the new facilities.

Figure 8. Area 4 - Regrowth of Castlereagh Scribbly Gum Woodland

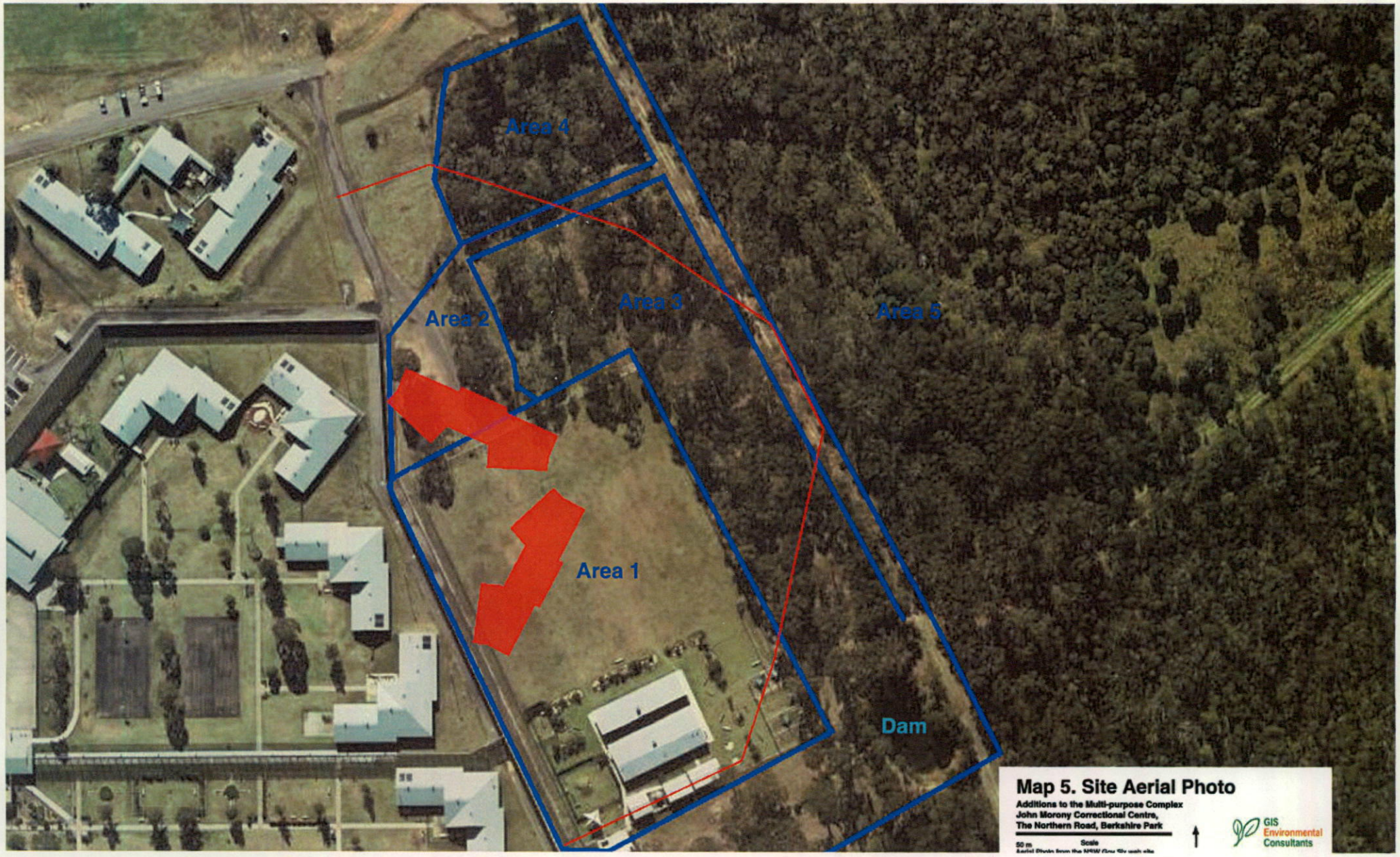
4.1.5 *Area 5. Castlereagh Scribbly Gum Woodland VEC*

Area 5 contains Castlereagh Scribbly Gum Woodland VEC in good condition and contains native species in all structural layers and is beyond the APZ, more than 70m from the new facilities. This area is to the north-east of the un-sealed road and drainage ditch, a good barrier, and will not be disturbed by the proposal but it is immediately adjacent to the proposal.

Due to the low level of disturbance, it is considered that this patch of bushland has high resilience.

4.2 *Bush Fire Mitigation Measures*

The proposed fire mitigation measures are not likely to have a negative impact on any Threatened Species, Population or Community.

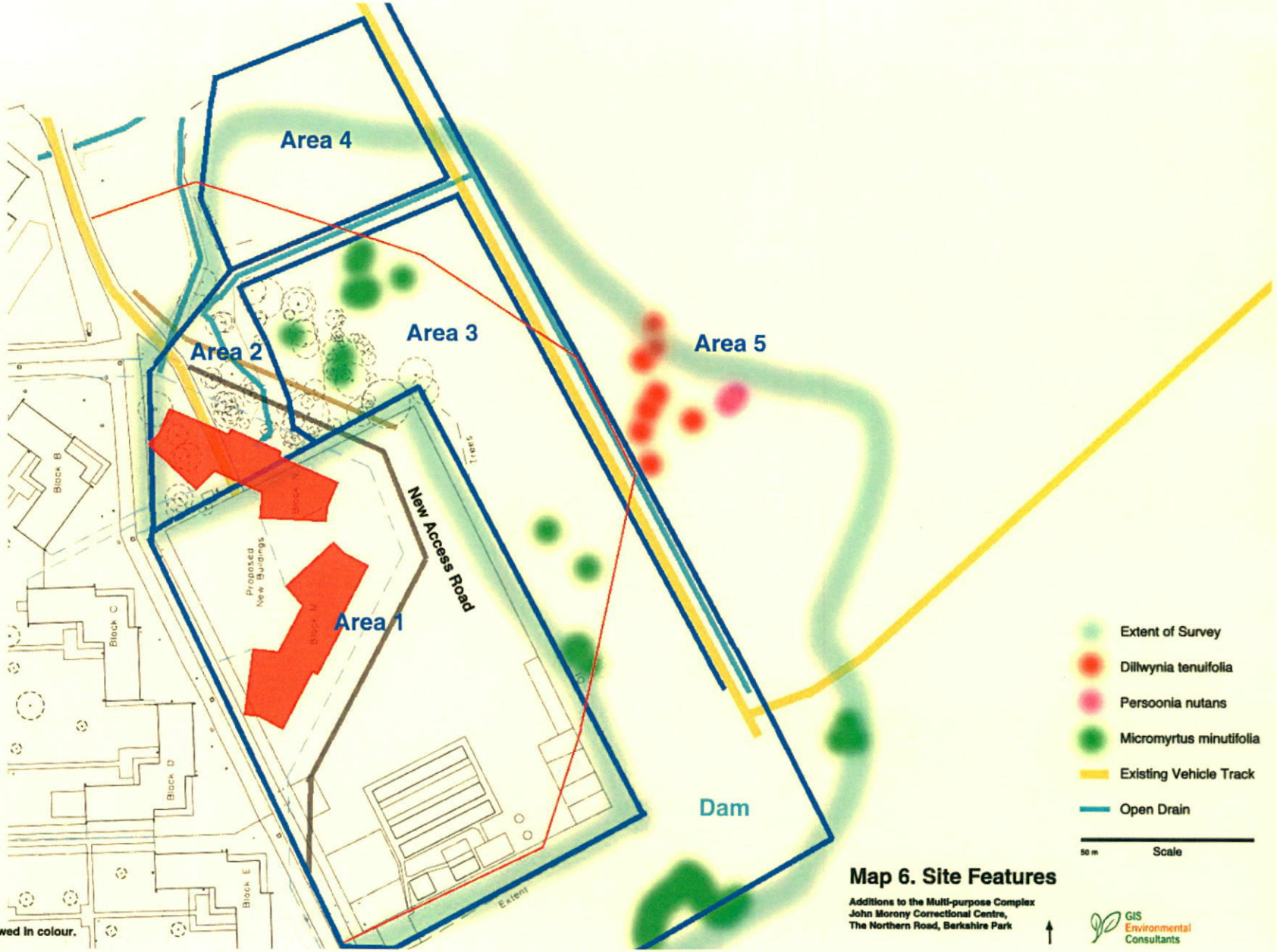


Map 5. Site Aerial Photo

Additions to the Multi-purpose Complex
John Morony Correctional Centre,
The Northern Road, Berkshire Park

Scale
50 m

GIS Environmental Consultants

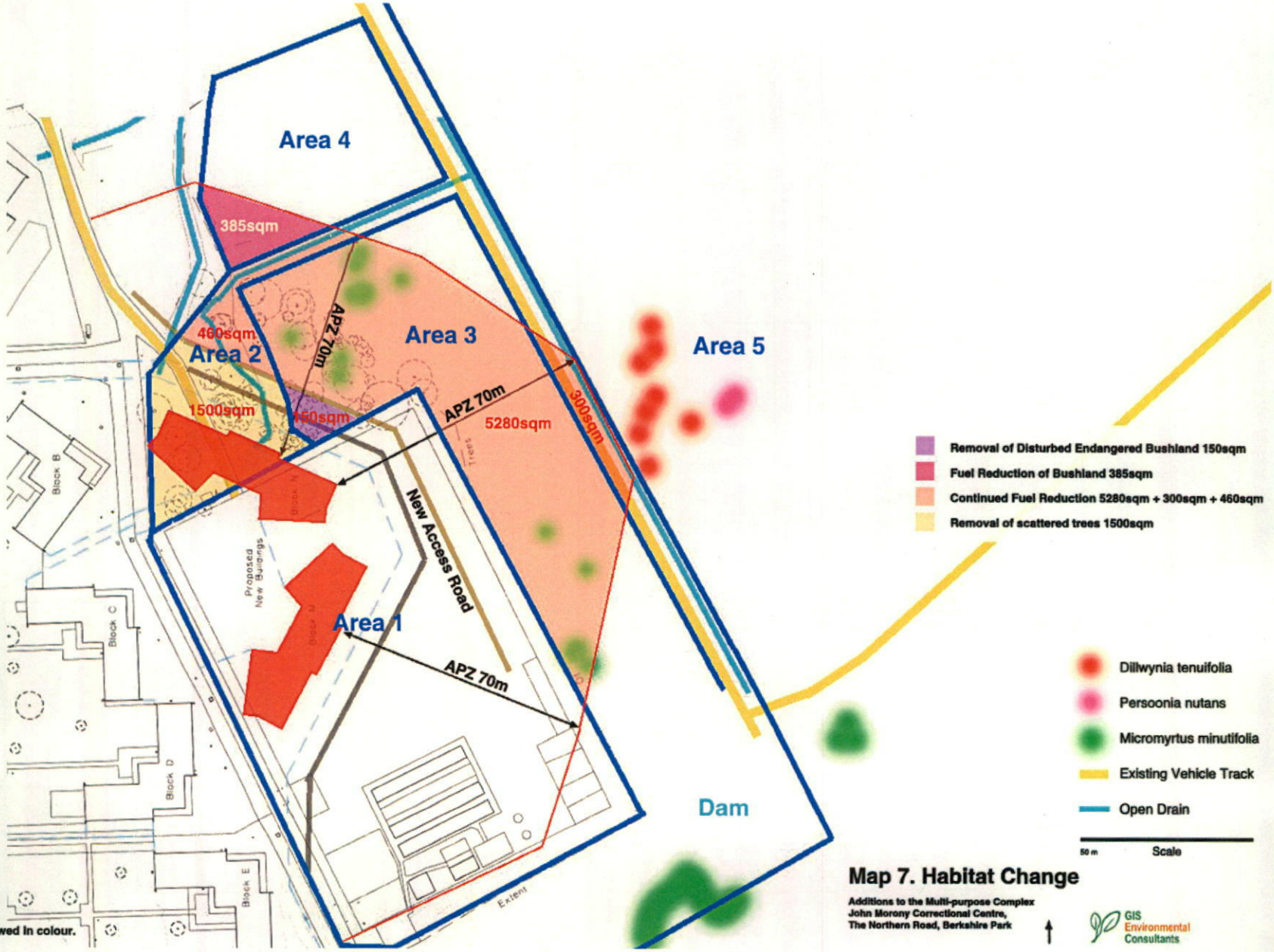


Map 6. Site Features

Additions to the Multi-purpose Complex
John Morony Correctional Centre,
The Northern Road, Berkshire Park

GIS Environmental Consultants

Note: This is a colour graphic that must be viewed in colour.



Map 7. Habitat Change

Additions to the Multi-purpose Complex John Morony Correctional Centre, The Northern Road, Berkshire Park

GIS Environmental Consultants

Note: This is a colour graphic that must be viewed in colour.

4.3 Database Search Results

There are 523 records from forty-three (43) different Threatened Species, eleven (11) Threatened flora species (see Table 1) and thirty-two (32) Threatened fauna (see Table 2) that have been recorded within 5 kilometres of the Site. Species that do not have suitable habitat on the site or that are not local native species are not listed. This is a high density of Threatened Species records and species and is an indication of the high habitat value of the environmental conditions at this locality and the areas important to the conservation of native flora and fauna. See Map 6 for Threatened Species records approximate locations.

Table 1: Targeted Threatened Flora Species

Genus and Species	Common Name	TSC Act Status	EPBC Act Status	Records within 5km
Acacia bynoeana	Bynoe's Wattle	E1,P	Vulnerable	20
Acacia gordonii		E1,P	Endangered	2
Acacia pubescens	Downy Wattle	V,P	Vulnerable	10
Allocasuarina glareicola		E1,P	Endangered	27
Dillwynia tenuifolia		V,P	Not Listed	121
Grevillea juniperina subsp. *juniperina*	Juniper-leaved Grevillea	V,P	Not Listed	15
Micromyrtus minutiflora		E1,P	Vulnerable	25
Persoonia hirsuta	Hairy Geebung	E1,P,3	Endangered	7
Persoonia nutans	Nodding Geebung	E1,P	Endangered	82
Pimelea curviflora var. *curviflora*		V,P	Vulnerable	1
Pultenaea parviflora		E1,P	Vulnerable	38

Key for TSC Act Status

Status	Status	Status Notes
V	Vulnerable	Schedule 2, TSC Act 1995, Likely to become endangered unless the circumstances & factors threatening its survival or evolutionary development cease to operate.
E1	Endangered	Schedule 1, part 1, TSC Act 1995, Likely to become extinct in nature in NSW unless the circumstances and factors threatening its survival or evolutionary stop, in immediate danger of extinction
3	Category 3 sensitive species	Species are classed as of medium sensitivity, and provision of precise locations would subject the species to medium risk from threats such as collection/deliberate damage.

Key for EPBC Act Status

Status	Status	Status Notes
E	Endangered	Refers to a native species is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (Subdivision A of Division 2 of Part 13, Commonwealth EPBC Act 1999).
V	Vulnerable	Refers to a native species is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria (Subdivision A of Division 1 of Part 13, Commonwealth EPBC Act 1999).

Table 2: Targeted Threatened Fauna Species

Class	Common Name	Genus and Species	TSC Act status	EPBC Act status	Records within 5km
Aves	Australian Painted Snipe	*Rostratula australis*	E1,P	Endangered	7
Aves	Australasian Bittern	*Botaurus poiciloptilus*	E1,P	Endangered	1
Aves	Barking owl	*Ninox connivens*	V,P,3	Not Listed	2
Aves	Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	V,P	Not Listed	4
Aves	Black Falcon	*Falco subniger*	V,P	Not Listed	2
Aves	Black-necked Stork	*Ephippiorhynchus asiaticus*	E1,P	Not Listed	6
Aves	Curlew Sandpiper	*Calidris ferrunginea*	E1,P	Not Listed	5
Aves	Flame Robin	*Petroica phoenica*	V,P	Not Listed	2
Aves	Freckled Duck	*Stictonetta naevosa*	V,P	Not Listed	2
Aves	Little Eagle	*Hieraaetus morphnoides*	V,P	Not Listed	4
Aves	Little Lorikeet	*Glossopsitta pusilla*	V,P	Not Listed	3
Aves	Major Mitchell's Cockatoo	*Lophochroa leadbeateri*	V,P,2	Not Listed	1
Aves	Painted Honeyeater	*Grantiella picta*	V,P	Not Listed	2
Aves	Powerful Owl	*Ninox strenua*	V,P,3	Not Listed	1
Aves	Regent Honeyeater	*Anthochaera phrygia*	E4A,P	Endangered	5
Aves	Scarlet Robin	*Petroica boodang*	V,P	Not Listed	7
Aves	Speckled Warbler	*Chthonicola sagitatta*	V,P	Not Listed	10
Aves	Spotted Harrier	*Circus assimilis*	V,P	Not Listed	2
Aves	Square-tailed Kite	*Lophoictinia isura*	V,P,3	Not Listed	2
Aves	Superb Parrot	*Polytelis swainsonii*	V,P,3	Vulnerable	2
Aves	Swift Parrot	*Lathamus discolor*	E1,P,3	Endangered	21
Aves	Varied Sittella	*Daphoenositta chrysoptera*	V,P	Not Listed	21
Gastropoda	Cumberland Plain Land Snail	*Meridolum corneovirens*	E1	Not Listed	30
Mammalia	Eastern Bentwing-bat	*Miniopterus schreibersii oceanensis*	V,P	Not Listed	1
Mammalia	Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	V,P	Not Listed	3
Mammalia	Eastern Freetail-bat	*Mormopterus norfolkensis*	V,P	Not Listed	8

Class	Common Name	Genus and Species	TSC Act status	EPBC Act status	Records within 5km
Mammalia	Greater Broad-nosed Bat	*Scoteanax rueppellii*	V,P	Not Listed	6
Mammalia	Grey-headed Flying Fox	*Pteropus poliocephalus*	V,P	Vulnerable	5
Mammalia	Koala	*Phascolarctos cinereus*	V,P	Vulnerable	1
Mammalia	Southern Myotis	*Myotis macropus*	V,P	Not Listed	6
Mammalia	Squirrel Glider	*Petaurus norfolcensis*	V,P	Not Listed	1
Mammalia	Yellow-bellied Glider	*Petaurus australis*	V,P	Not Listed	2

Key for TSC Act Status

Status	Status	Status Notes
P	Protected Animal	Fauna not listed in Schedule 11 of the NPW Act 1974.
V	Vulnerable	Schedule 2, TSC Act 1995, Likely to become endangered unless the circumstances & factors threatening its survival or evolutionary development cease to operate.
E1	Endangered	Schedule 1, part 1, TSC Act 1995, Likely to become extinct in nature in NSW unless the circumstances and factors threatening its survival or evolutionary stop, in immediate danger of extinction
E2	Endangered Population	Schedule 1, part 2, TSC Act 1995 Population where, numbers have been reduced to such a critical level, or its habitat has been so drastically reduced, that it is in immediate danger of extinction
2	Category 2 sensitive species	Species are classed as highly sensitive, and provision of precise locations would subject the species to high risk from threats such as disturbance and collection.
3	Category 3 sensitive species	Species are classed as of medium sensitivity, and provision of precise locations would subject the species to medium risk from threats such as collection/deliberate damage.

Key for EPBC Act Status

Status	Status	Status Notes
E	Endangered	Refers to a native species is eligible to be included in the endangered category at a particular time if, at that time: (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria (Subdivision A of Division 2 of Part 13, Commonwealth EPBC Act 1999).
V	Vulnerable	Refers to a native species is eligible to be included in the vulnerable category at a particular time if, at that time: (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria (Subdivision A of Division 1 of Part 13, Commonwealth EPBC Act 1999).

4.4 Endangered Ecological Communities Assessment

The NSW Threatened Species Conservation Act (TSC), 1995 and the Federal Environment Protection and Biodiversity Conservation (EPBC) Act 1999, both list Threatened ecological communities. Threatened ecological communities can be either Vulnerable (VEC) or Endangered (EEC) or Critically Endangered (CEEC) Ecological Communities under the TSC Act. The Federal Act lists only Endangered or Critically Endangered Ecological Communities. These communities are likely to become extinct in nature unless the circumstances and factors threatening their survival cease to operate. The listing is most commonly referred to as a determination, which is a several page definition of the community written by a scientific committee and listed in the schedules of the Act.

4.4.1 Occurrence of EECs on this Study Site

The three method assessment found the following:

Mapping Result

The best available ecological community mapping of this locality is by Tozer in 2006. This mapping is shown in Map 4. The Site is mapped as being within a large area of Castlereagh Scribbly Gum Woodland VEC. The map shows a large area of Shale/Gravel Transitional Forest to the north of the Site and a large area of Cooks River Castlereagh Ironbark Forest to the east and a small patch of Castlereagh Swamp Woodland to the south. Small areas of Shale Plains Woodland (Cumberland Plain Woodland CEEC) occur to the east and west (off the Map). Immediately to the west of the site is cleared land with no native vegetation which is the site of the old farm and the existing Prison complex.

The Critically Endangered Cumberland Plains Woodland occurs close to, but not immediately adjacent to the site. All of the native Ecological Communities in this locality are listed in the schedule of the TSC Act 1995. Cumberland Plain Woodland Critically Endangered Ecological Community and Shale Gravel Transition Forest are both also listed as Critically Endangered under the EPBC Act 1999.

Correlation Result

The long time since fire on this site and the limit on the season of surveying means that there may be some species of plant that may only be present as dormant seed or bulbs and have not been included in this assessment.

Cooks River/Castlereagh Ironbark Forest EEC

The study site contains 19 of the 72 (~26%) characteristic Cooks River/Castlereagh Ironbark Forest EEC species listed in the TSC determination (see Table 3). There are insufficient characteristic species as listed in the determination of Cooks River/Castlereagh Ironbark Forest EEC for this vegetation to be considered this community.

Shale Gravel Transition Forest EEC

The study site contains 12 of the 44 (~27%) characteristic Shale Gravel Transition Forest EEC species listed in the TSC determination (see Table 3). There are insufficient characteristic species as listed in the determination of Shale Gravel Transition Forest EEC for this vegetation to be considered this community.

Castlereagh Swamp Woodland EEC

The study site contains 11 of the 29 (~38%) characteristic Castlereagh Swamp Woodland EEC species listed in the TSC determination (see Table 3). There are insufficient characteristic species as listed in the determination of Castlereagh Swamp Woodland EEC for this vegetation to be considered this community.

Cumberland Plains Woodland CEEC

The study site contains 14 of the 128 (~11%) characteristic Cumberland Plain Woodland CEEC species listed in the TSC determination (see Table 3). There are insufficient characteristic species as listed in the determination of Cumberland Plain Woodland CEEC for this vegetation to be considered this community.

Castlereagh Scribbly Gum Woodland VEC

The Study Site contains 22 of the 49 (~45%) characteristic Castlereagh Scribbly Gum Woodland Vulnerable Ecological Community species listed in the TSC determination (See Table 3).

The NSW Scientific Committee in their final determination for CSGW VEC has determined that this community is characterised by an assemblage of approximately forty nine (49) species of plants: *Acacia brownii; Acacia bynoeana; Acacia elongata; Amphipogon strictus* var. *strictus; Angophora bakeri; Aristida warburgii; Banksia spinulosa; Bursaria spinosa; Cassytha glabella* subsp. *glabella; Centrolepis strigosa; Cheilanthes sieberi* var. *sieberi; Cyathochaeta diandra; Cyperus haspan* subsp. *haspan; Daviesia ulicifolia; Dianella revoluta* subsp. *revoluta; Dichondra repens; Drosera spatulata; Eleocharis philippinensis; Entolasia stricta; Eragrostis brownii; Eucalyptus parramattensis* subsp. *parramattensis; Eucalyptus sclerophylla; Gonocarpus micranthus; Gonocarpus tetragynus; Hakea dactyloides; Hakea sericea; Hovea longifolia; Hypericum gramenium; Laxmannia gracilis; Leptospermum contintale; Leptospermum trinervium; Lepyrodia scariosa; Lomondra multiflora* subsp. *multiflora; Melaleuca decora; Melaleuca nodosa; Melichrus urceolatus; Microlaena stipoides* var. *stipoides; Micromyrtus cilliata; Micromyrtus minutiflora; Opercularia diphylla; Panicum simile; Pimelea linifolia* subsp. *collina; Pimelea linifola* subsp. *linifolia; Platysace ericoides; Schoenus paludosus; Sphaerolobium vimineum; Stylidium graminifolium; Themeda australis; Xanthorrhoea minor subsp. minor.*

Areas 3 and 5 contains a sufficient number of characteristic CSGW VEC plant species for the area to potentially meet the definition in the determination.

Native species and good condition, native vegetation occurs within Areas 2 and 4 but there is insufficient characteristic species as listed in the determination of Castlereagh Scribbly Gum Woodland VEC in these areas to be considered the community.

There are no other Endangered Ecological Communities that are likely to occur within the site.

Table 3: Assessment of EEC Species Correlation using the TCS Act Determination

Threatened Ecological Community	Number of Characteristic Species		Likely Community Presence
	In determination	**Found**	
CSGW	49	22	**45% Likely**
CRCIF	72	19	**26% Not Likely**
CPW	128	14	**11% Not Likely**
CSW	29	11	**27% Not Likely**
SGTF	**44**	**12**	**38% Not Likely**

Comparison Result

Only Castlereagh Scribbly Gum Woodland Vulnerable Ecological Community was compared due to the results of the previous two methods.

The definition of Castlereagh Scribbly Gum Woodland (CSGW) VEC is made up of thirteen (13) sections. Some of these are not relevant to defining the ecological community. The earlier sections are more important and should be given more weight when deciding if a site fits the description (Preston and Adams 2004). The appropriate sections for comparison refer to geology/elevation (Section 5), dominant flora species assemblages (Section 4), and the Local Government Areas that are associated with CSGW VEC (Sections 9 and 10). The environmental conditions in Areas 3 and 5 are consistent with the aforementioned sections and are considered to meet the definition in the determination. The soil and topography are correct (Section 5) and in one of the specified Local Government Areas (Section 7). All three of the dominating tree species are present and dominating the site (Section 4).

This vegetation type may have occurred in Areas 2 and 4 in the past, however due to disturbance in these areas the mixture of plants and environmental conditions in these areas, they no longer meet the definition of this VEC.

Castlereagh Scribbly Gum Woodland occurs almost exclusively on soils derived from Tertiary alluvium, or on sites located on adjoining shale or Holocene alluvium. This community occurs within the local government areas of Bankstown, Blacktown, Campbelltown, Hawkesbury, Liverpool and Penrith. The main occurrence is in the Castlereagh area of the Cumberland Plain. Threats include clearing for urban development, frequent fire due to arson and hazard reduction burning, invasion by exotic plants, climate change, vegetation and water courses and infestation by the soil pathogen *Phytophthora cinnamomi*.

Conclusion regarding occurrence of EECs on the Site

Based on the above 3-part analysis method, ecological experience and the requirement for taking the Precautionary Principal into consideration, I consider that:

- Areas 3 and 5 contain Castlereagh Scribbly Gum Woodland Vulnerable Ecological Community and meet the definition in the determination.
- The vegetation in Areas 1, 2 and 4 are disturbed and the environmental, structural and floristic characteristics do not adequately meet the definition of the Castlereagh Scribbly Gum Woodland Vulnerable Ecological Community or any other Endangered Ecological Community from the TSC Act 1995 or the EPBC Act 1999.

The site does contain a Vulnerable Ecological Community and therefore a 7-part Test of Significance for EECs is required for this environmental impact assessment.

4.5 Flora Findings

4.5.1 Impact to Ecological Communities

The proposal will result in a loss of 150m^2 of fair quality Castlereagh Scribbly Gum Woodland VEC from Area 3 due to the construction of the proposal. Area 3 will continue to be managed as an APZ and the proposal will not increase the impact to this Area. 1500m^2 of scattered, remnant native trees that are not any EEC will be lost from Area 2 due to the construction of the new dwelling. 385m^2 of disturbed bushland (not an EEC) will be disturbed by fuel reduction from Area 4 for the establishment of an APZ around the new dwelling. The remaining bushland in Areas 2 and 3 are already disturbed, either for APZ or un-sealed roads, and there will be no change to these Areas. Area 5 will not be disturbed by the proposal but it is immediately adjacent to the proposal.

4.5.2 Impact to Plant Species

63 plant species occur within the extent of the survey shown on Map 6. These are listed in Table 5. Seven are weed species or have been planted, 56 are local native species. This is a high level of species richness within the Sydney bioregion. There are 25 native shrub species, 16 native herb species, 6 native tree species, 5 native grass species, 2 native vine species, 1 native fern species, 1 native grass tree species and 1 native sedge. This high number of shrub species and the relatively low number of grasses is typical in an area that has remained unburnt for long periods of time. The number of native species present would likely be higher after a fire. The native species are typical of this locality and these vegetation types.

Three Threatened flora species were found on the site during this survey, *Micromyrtus minutiflora* (Figure 7), *Persoonia nutans* (Figure 8) and *Dillwynia tenuifolia* (Figure 9). The location of these on the site are shown on Maps 6 and 7. Only *Micromyrtus minutiflora* occurs within the disturbance footprint of the proposal in Area 3. The parts of the site where this species was found are the area that is currently managed as an APZ and will continue to be managed as an APZ. The other two Threatened species occur within Area 5, that will not be affected by the proposal.

No other Threatened flora species were found on the site during this survey, although several other species are known to occur within the locality. The site provides suitable habitat for other threatened flora species; the likelihood of these occurring on the site is assessed in Table 4.

Table 4: Habitat Suitability for Targeted Threatened Flora Species

Scientific Name	Habitat Preference	Likely Occurrence
Acacia gordonii	Restricted to the north-west of Sydney, it has a disjunct distribution occurring in the lower Blue Mountains in the west, and in the Maroota/Glenorie area in the east. This species is known from only a few locations and current information suggests the total number of individuals may be less than 2000, This species is found within the Hawkesbury, Blue Mountains and Baulkham Hills LGAs. Grows in dry sclerophyll forest and heathlands amongst or within rock platforms on sandstone outcrops.	Local Occurrence: **Low** likelihood. No recent records within 5km of the Site. Distinctive foliage. Not found during survey. Habitat Value: **Low** quality habitat occurs within study site. Suitable habitat occurs within study site. Site well searched Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**

Scientific Name	Habitat Preference	Likely Occurrence
Persoonia nutans	Restricted to the Cumberland Plain in western Sydney, between Richmond in the north and Macquarie Fields in the south. Confined to aeolian and alluvial sediments and occurs in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks Woodland or Castlereagh Scribbly Gum Woodland. Peak flowering is from December to January with sporadic flowering all year round. An obligate seed regenerator. Seed germination is promoted, not only by fire, but also by physical disturbance.	Local Occurrence: **Found onsite**. Eighty-two (82) records within 10km of the site. Currently in flower. Searched in suitable season. Habitat Value: **High.** Suitable habitat occurs within study site, outside of proposal area. Direct and Indirect Impacts: **No impact to existing plants.** Only to potential habitat. 535m^2 area of impact. Not very compatible with APZ. Conclusion: **Further assessment in the form of an Assessment of Significance (7-part test) is required.**
Acacia pubescens	Concentrated around the Bankstown-Fairfield-Rookwood area and the Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. Occurs in open woodland and forest, in a variety of plant communities, including Cooks River/Castlereagh Ironbark Forest, Shale/Gravel Transition Forest and Cumberland Plain Woodland. Flowers from August to October. *Acacia* species generally have high seed dormancy and long-lived persistent soil seedbanks.	Local Occurrence: **Low** likelihood. Ten (10) recent records within 10km of the site. Not found during survey. Site well searched. Distinctive plant. Habitat Value: **Low** quality habitat occurs within study site. Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**
Dillwynia tenuifolia	The core distribution is the Cumberland Plain from Windsor to Penrith east to Deans Park. Other populations in western Sydney are recorded from Voyager Point and Kemps Creek in the Liverpool LGA, Luddenham in the Penrith LGA and South Maroota in the Baulkham Hills Shire. Disjunct localities include: the Bulga Mountains at Yengo in the north, Kurrajong Heights and Woodford in the Lower Blue Mountains. Occurs in vegetation similar to Cumberland Plain Woodland, on Wianamatta Shale soils. Flowering occurs sporadically from August to March.	Local Occurrence: **Found onsite**. One hundred and twenty one (121) records within 10km of the site and some within 100m. Not currently in flower. Not easily detected from a distance when not in flower. Searched in suitable season. Habitat Value: **High** suitable habitat occurs within study site. Direct and Indirect Impacts: **Potential** impact to habitat. Conclusion: **Further assessment in the form of an Assessment of Significance (7-part test) is required.**
Acacia bynoeana	Found in Frenchs Forest, Northbridge, Killara and Baulkham Hills. This species grows on sandy soils in heath, woodland and open forests. Seems to prefer open, sometimes slightly disturbed sites such as trail margins, edges of roadside spoil mounds and in recently burnt patches. Associated overstorey species include Red Bloodwood, Scribbly Gum, Parramatta Red Gum, Saw Banksia and Narrow-leafed Apple.	Local Occurrence: **High** likelihood. Twenty (20) recent records within 10km of the site and less than 200m to the south of the site. Site was well searched. Distinctive foliage. Not found during the site survey. Habitat Value: **High** quality habitat occurs within study site. Direct and Indirect Impacts: **Low Likely**. Small area of impact. APZ not likely to be harmful to this species. 150m^2 potential habitat loss. Conclusion: **No further assessment required.**

Scientific Name	Habitat Preference	Likely Occurrence
Allocasuarina glareicola	Restricted to a few small populations in or near Castlereagh S.F., north east of Penrith. The total range of the species is approximately 36km^2. This species grows on tertiary alluvial gravels, with yellow clayey subsoil and lateritic soil. It is found in the Castlereagh open woodland community with *Eucalytpus parramattenis, E. fibrosa, E. sclerophylla, Angophora bakeri,* and *Melaleuca decora.* Common associated understory species include *Melaleuca nodosa, Hakea dactyloides, H. sericea, Dillwynia tenuifolia, Micromyrtus minutiflora, Acacia elongata, A. brownie, Themeda australis* and *Xanthorrhoea minor.* Flowers are borne in October, and the species re-sprouts from the rootstock.	Local Occurrence: **Low** likelihood. Twenty-seven (27) recent records within 10 km of the site. Not found during survey. Site well searched. Cryptic form a distance. Habitat Value: **High** suitable habitat occurs within study site. Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**
Micromyrtus minutiflora	Endemic to the western parts of the Cumberland Plain in the Richmond-Castlereagh area of the Sydney Region, and restricted to the general area between Richmond and Penrith. It grows in Casteleagh Scribbly Gum Woodland, Ironbark Forest, Shale/Gravel Transition Forest, open forest on tertiary alluvium and consolidated river sediments. Sporadic flowering, June to March. Response to fire and mechanical disturbance is uncertain. Regeneration may be due to re-sprouting or germination of soil-stored seed.	Local Occurrence: **Found onsite**. Twenty-five (25) records within 10km of the site. Known from within 100m. Currently in flower. Searched in suitable season. Habitat Value: **Highly** suitable habitat occurs within study site. Direct and Indirect Impacts: **Likely**. Conclusion: **Further assessment in the form of an Assessment of Significance (7-part test) is required.**
Pultenaea parviflora	Endemic to the Cumberland Plain, Core distribution is form Windsor to Penrith and east to Dean Park. Outlier populations are recorded from Kemps Creek and Wilberforce. May be locally abundant, particularly within scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Forest on tertiary alluvium or laterised clays. May also be common in transitional areas where these communities adjoin Castlereagh Scribbly Gum Woodland. Flowering occurs between August and November. Killed by fire and re-establishes from soil-stored seed.	Local Occurrence: **Low** likelihood. Thirty-eight (38) recent records within 10km of the site and within 500m. Seasonal & cryptic but the site was well searched. Targeted during survey. Not found during survey. Habitat Value: **Suitable** habitat occurs within study site. Site well searched Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**

Scientific Name	Habitat Preference	Likely Occurrence
Grevillea juniperina sbsp. juniperina	Endemic to Western Sydney, centered on an area bounded by Blacktown, Erskine Park, Londonderry and Windsor with outlier populations at Kemps Creek and Pitt Town. Grows on reddish clay to sandy soils derived from Wianamatta Shale and Tertiary alluvium, typically containing lateritic shale. Recorded form Cumberland Plain Woodland, Castlereagh Ironbark Woodland, Castlereagh Scribbly Gum Woodland and Shale/Gravel Transition Forest. Flowering occurs between July and October. Plants are killed by fire with regeneration solely from soil-stored seed.	Local Occurrence: **Low** likelihood. Fifteen (15) recent records within 10km of the site. Seasonal & cryptic from a distance but the site was well searched. Targeted during survey. Searched in suitable season. Not found during survey. Habitat Value: **No** suitable habitat occurs within study site. Suitable habitat occurs within study site. Site well searched Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**
Persoonia hirsuta	Usually found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone. Usually present as isolated individuals or very small populations.	Local Occurrence: **High** likelihood. Seven (7) recent records within 10km of the site also within 200m of site. Seasonal & cryptic. Targeted during survey. Searched in suitable season. Not found during survey. Habitat Value: Suitable habitat occurs within study site. Site well searched Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**
Pimelea curviflora var. curviflora	Confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. Usually found in shale/sandstone transition woodland on sandstone and laterite soils.	Local Occurrence: **Medium** likelihood. One (1) recent record within 200m of the Site. Seasonal & cryptic. Targeted during survey. Not found during survey. Too long since fire. Habitat Value: **Medium** suitable habitat occurs within study site. Direct and Indirect Impacts: **Unlikely**. Conclusion: **No further assessment required.**

4.5.3 Flora Species Found During Survey

A comprehensive list of the flora found within the survey area on site are found in Table 5.

Table 5. Plant Species List

That Occur in the Extent of the Survey (Map 6)

Genus and Species	Family	Habit	Order	Common Name	EEC listed Characteristic Characteristics	Status
Native Species					**CSGW, CRCIF, SGTF, CSW, CPW**	
Acacia brownii	FABACEAE	Shrub	DICOTYLEDON		CSGW	
Acacia decurrens	FABACEAE	Tree	DICOTYLEDON	Sydney Green Wattle		
Acacia elongata var. elongata	FABACEAE	Tree	DICOTYLEDON	Swamp Wattle	CSGW	
Acacia falcata	FABACEAE	Tree	DICOTYLEDON	Sickle Wattle	CRCIF SGTF	
Angophora bakeri	MYRTACEAE	Tree	DICOTYLEDON		CSGW CRCIF CPW	
Banksia spinulosa var. spinulosa	PROTEACEAE	Shrub	DICOTYLEDON	Hairpin Banksia	CSGW	
Bossiaea rhombifolia	FABACEAE - FABOIDEAE	Shrub	DICOTYLEDON	Bossiaea		
Callistemon linearis	MYRTACEAE	Shrub	DICOTYLEDON	Narrow-Leaved Bottlebrush		
Cassytha glabella	LAURACEAE	Vine	DICOTYLEDON	Smooth Devil's Twine	CRCIF	
Cheilanthes sieberi	SINOPTERIDACEAE	Fern	FERN	Rock Fern	CSGW SGTF CPW CRCIF	
Commelina cyanea	COMMELINACEAE	Herb	MONOCOTYLEDON	Creeping Christian	CPW	
Daviesia acicularis	FABACEAE	Shrub	DICOTYLEDON			
Dianella revoluta var. revoluta	PHORMIACEAE	Herb	MONOCOTYLEDON	Mauve Flax Lily	CSGW CSW CRCIF	
Dichelachne micrantha	POACEAE	Grass	MONOCOTYLEDON		CPW CRCIF SGTF	
Dichondra repens	CONVOLVULACEAE	Herb	DICOTYLEDON	Kidney Weed	CPW CSGW SGTF	
Dillwynia rudis	FABACEAE	Shrub	DICOTYLEDON			
Dillwynia tenuifolia	FABACEAE	Herb	DICOTYLEDON			V,P (TSC Act)
Einadia hastata	CHENOPODIACEAE	Herb	DICOTYLEDON		CPW	
Eucalyptus parramattensis subsp. parramattensis	MYRTACEAE	Tree	DICOTYLEDON	Parramatta Red Gum	CSGW CSW	
Eucalyptus sclerophylla	MYRTACEAE	Tree	DICOTYLEDON	Hard Leaved Scribbly Gum	CSGW CSW	
Exocarpos strictus	SANTALACEAE	Shrub	DICOTYLEDON	Dwaft Current		
Gnaphalium sphaericus	ASTERACEAE	Herb	DICOTYLEDON			
Gompholobium minus	FABACEAE	Shrub	DICOTYLEDON	Dwarf Wedge Pea		
Gonocarpus tetragynus	HALORAGACEAE	Herb	DICOTYLEDON	Poverty Raspwort	CSGW CRCIF	
Goodenia hederacea subsp. hederacea	GOODENIACEAE	Herb	DICOTYLEDON	Violet-leaved Goodenia	CPW CRCIF SGTF	
Grevillea mucronulata	PROTEACEAE	Shrub	DICOTYLEDON	Green Spider Flower		
Hakea dactyloides	PROTEACEAE	Shrub	DICOTYLEDON	Broad-leaved Hakea	CSGW	
Hakea sericea	PROTEACEAE	Shrub	DICOTYLEDON	Bushy Needlebush	CSGW CRCIF	
Hardenbergia violacea	FABACEAE	Vine	DICOTYLEDON	False Sarsaparilla	SGTF	
Hibbertia riparia	DILLENIACEAE	Shrub	DICOTYLEDON	Guinea Flower		
Imperata cylindrica	POACEAE	Grass	MONOCOTYLEDON	Blady Grass		
Juncus usitatus	JUNCACEAE	Sedge	MONOCOTYLEDON	Tussock Rush	CPW	
Kunzea ambigua	MYRTACEAE	Shrub	DICOTYLEDON	Tick Bush	CRCIF	
Kunzea capitata	MYRTACEAE	Shrub	DICOTYLEDON	Pink Kunzea		
Leptospermum polygalifolium ssp. polygalifolium	MYRTACEAE	Shrub	DICOTYLEDON	Lemon Scented Tea Tree		
Lomandra multiflora	LOMANDRACEAE	Herb	MONOCOTYLEDON	Many-flowered Mat-rush	CSGW SGTF CPW CRCIF	
Melaleuca decora	MYRTACEAE	Shrub	DICOTYLEDON	White Feather Honeymyrtle	CSGW CRCIF SGTF	
Melaleuca erubescens	MYRTACEAE	Shrub	DICOTYLEDON	Pink Honeymyrtle		

Melaleuca nodosa	MYRTACEAE	Shrub	DICOTYLEDON	Ball Honeymyrtle	CSGW CRCIF	
Melaleuca squamea	MYRTACEAE	Shrub	DICOTYLEDON	Swamp Honey Myrtal		
Microlaena stipoides	POACEAE	Grass	MONOCOTYLEDON	Weeping Grass	CPW CSGW CRCIF	
Micromyrtus minutiflora	MYRTACEAE	Shrub	DICOTYLEDON		CSGW	E1,P (TSC Act) Vulnerable (EPBC Act)
Opercularia diphylla	RUBIACEAE	Herb	DICOTYLEDON	Stinkweed	CPW CSGW CRCIF	
Oxalis perennans	OXALIDACEAE	Herb	DICOTYLEDON	Yellow Oxalis	CPW SGTF	
Ozothamnus diosmifolius	ASTERACEAE	Herb	DICOTYLEDON		CRCIF	
Panicum simile	POACEAE	Grass	MONOCOTYLEDON	Two Colour Panic	CSGW CRCIF SGTF	
Persoonia linearis	PROTEACEAE	Shrub	DICOTYLEDON	Narrow-leaved Geebung		
Persoonia nutans	PROTEACEAE	Shrub	DICOTYLEDON			E1,P (TSC Act) Endangered (EPBC Act)
Pimelea linifolia ssp. linifolia	THYMELAEACEAE	Shrub	DICOTYLEDON	Rice Flower	CSGW	
Pomax umbellata	RUBIACEAE	Herb	DICOTYLEDON	Pomax	CRCIF SGTF	
Pratia purpurascens	LOBELIACEAE	Herb	DICOTYLEDON	White Root	CPW CRCIF SGTF	
Solanum prinophyllum	SOLANACEAE	Herb	DICOTYLEDON	Forest Nightshade	CPW	
Sporobolus virginicus	POACEAE	Grass	MONOCOTYLEDON	Sand Couch		
Stylidium graminifolium	STYLIDIACEAE	Herb	DICOTYLEDON	Trigger Plant	CSGW	
Styphelia laeta var. laeta	EPACRIDACEAE	Shrub	DICOTYLEDON			
Xanthorrhoea minor ssp. minor	XANTHORRHOEACEAE	Grass Tree	MONOCOTYLEDON	Grass Tree	CSGW	
TOTAL 56						
Non-native Species						
Ambrosia sp.	ASTERACEAE	Herb	DICOTYLEDON	Rag Weed		Weed
Conyza sp.	ASTERACEAE	Herb	DICOTYLEDON	Fleabane		Weed
Portulaca oleracea	PORTULACACEAE	Herb	DICOTYLEDON	Purslane, Pig Weed		Weed
Ranunculus repens	RANUNCULACEAE	Herb	DICOTYLEDON	Creeping Buttercup		Weed
Senecio madagascariensis	ASTERACEAE	Herb	DICOTYLEDON	Fire Weed		Weed
Sida rhombifolia	MALVACEAE	Herb	DICOTYLEDON	Paddy's Lucerne		Weed
Verbena rigida	VERBENACEAE	Herb	DICOTYLEDON	Veined Verbena		Weed
TOTAL 7						

4.7 Assessment of Impact to Threatened Flora Species

Three (3) Threatened flora species, *Micromyrtus minutiflora* (Figure 7), *Persoonia nutans* (Figure 8) and *Dillwynia tenuifolia* (figure 9) were found at the locations shown on Maps 6 and 7 on the site. These Threatened plants were not found in any of the areas to of vegetation that will be lost due to the building footprint. They do occur on the part of Area 3 that will continue to be managed as an APZ. This species is low growing and responds favourably to having the rest of the shrub canopy and the tree canopy thinned. It is most likely this species will continue to exist if the APZ is managed in the way it is now and as described in this report. The proposal may to impact these species and their habitat and an Assessment of Significance (7-part test) was conducted for each species.

Figure 9. Threatened flora species, *Micromyrtus minutiflora* found within the site

Figure 10. Threatened flora species, *Persoonia nutans* found within the site

Figure 11. Threatened flora species, *Dillwynia tenuifolia* found within the site

4.8 Fauna Findings

4.8.1 Description of Fauna Habitat

There are no caves, culverts, cliffs or creeks on the site.

There are at least two (2) dams adjacent to the study area to the east (See Maps 1 and 4).

Areas 2, 4 and 5 contain scattered debris that could provide shelter for many native fauna including reptiles, and snails. All debris was well searched and no fauna were found to be using these structures.

Only one tree hollow was found onsite in Area 5. This area will not be impacted by the proposal.

A birds nest was found in Area 2, most likely a Magpie nest.

There were very few fallen logs and tree stumps on site, however those few were searched for the presence of any fauna species.

The vegetation on the property includes areas of exotic grass that is regular habitat for the Eastern Grey Kangaroo (*Macropus giganteus)* with sightings and scat evidence throughout the site.

4.8.2 *Assessment of Threatened Fauna Species*

No threatened fauna species were found on this property during this survey. There was no evidence of the site being importnant habitat for threatened fauna species using the site. However, the site does provide suitable habitat for Threatened Species within the disturbance area in Area 3, particularly nesting, roosting and foraging habitat for three Threatened micro-bats a number of threatened species.

The following threatened fauna species are known to exist within 5km of the site and were targeted during the survey.

Table 7: Habitat Suitability for Targeted Threatened Fauna Species

Common Name	Scientific Name	Potential to occur at this site
Gastropoda		
Cumberland Plain Land Snail	*Meridolum corneovirens*	Thirty (30) recent records within 10km of the site. Lives in a very small area on the Cumberland Plain west of Sydney, from Richmond and Windsor south to Picton and from Liverpool west to the Hawkesbury and Nepean Rivers at the base of the Blue Mountains. This community is grassy, open woodland with occasional dense patches of shrubs. Lives under litter of bark, leaves and logs, or shelters in loose soil around grass clumps. Occasionally shelters under rubbish. Can dig several centimeters into soil to escape drought. Occurrence: High likelihood, known to occur within 200m, however none found during site survey. Habitat Value: Fair quality habitat. No evidence of presence found during survey. Site well searched. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Aves		
Australasian Bittern	*Botaurus poiciloptilus*	One (1) recent record within 10km of the site. Species favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and spikerushes. They hide during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails. Occurrence: There is a dam with some reeds to the south of the site. Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Australian Painted Snipe	*Rostratula australis*	Seven (7) recent records within 10km of the site. In NSW many records are from the Murray-Darling Basin including the Paroo Wetlands, Lake Cowal, Macquarie Marshes, Fivebough Swamp and, more recently, swamps near Balldale and Wanganella. Recent records include the Hawkesbury River and the Clarence and the lower Hunter Valleys. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds, breeding occurs from September to December. Feeds on worms, molluscs, insects and some plant-matter.

		Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Barking Owl	*Ninox connivens*	Two (2) recent records within 10km of the site. Nests in large tree hollows. Inhabits eucalypt woodland, open forest, swamp woodlands along watercourses. Roosts along creek lines, usually in tall understorey trees with dense foliage such as *Acacia* and *Casuarina* species, or the dense clumps of canopy leaves in large Eucalypts. Feeds on a variety of prey, with invertebrates predominant for most of the year, and birds and mammals such as smaller gliders, possums, rodents and rabbits becoming important during breeding. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Trees on the site are not large enough for nesting. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Black-chinned Honeyeater (eastern subspecies)	*Melithreptus gularis gularis*	Four (4) recent records within 10km of the site. Rarely recorded east of the Great Dividing Range, although regularly observed from the Richmond and Clarence River areas. Occupies mostly upper levels of drier open forests or woodlands dominated by box and ironbark eucalypts, especially Mugga Ironbark (*Eucalyptus sideroxylon*), White Box (*E. albens*), Inland Grey Box (*E. microcarpa*), Yellow Box (*E. melliodora*), Blakely's Red Gum (*E. blakelyi*) and Forest Red Gum (*E. tereticornis*). Also inhabits open forests of smooth-barked gums, stringybarks, ironbarks, river sheoaks (nesting habitat) and tea-trees. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Black Falcon	*Falco subniger*	Two (2) recent records within 10km of the site. Inhabits woodland, shrub land and grassland in the semi-arid zones of inland NSW. Usually associated with streams or wetlands. Much of the best habitat in NSW is likely to occur on private land (i.e. agricultural or pastoral land), rather than in reserves. Breeding occurs between winter and late spring. Prey includes other birds, small mammals and occasionally carrion. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Black-necked Stork	*Ephippiorhynchus asiaticus*	Six (6) recent records within 10km of the site. Widespread in south to central-eastern NSW, and found mainly on shallow, permanent freshwater, terrestrial wetlands, and surrounding marginal vegetation including swamps, floodplains, watercourses and billabongs, wet heathland, farm dams and shallow floodwaters, as well as extending into adjacent grasslands, paddocks and open savannah woodlands. Prey includes eel's and other fish, frogs, turtles, snakes and invertebrates (such as crabs and insects). Breeding occurs in late spring and summer. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any

		impact on this species. Conclusion: **No further assessment required.**
Curlew Sandpiper	*Calidris ferruginea*	Five (5) recent records within 10km of the site. Migrates to the coastline of Australia between August and November form Siberia, and leaves between March and Mid-April. Generally occupies littoral and estuarine habitats, and in NSW is mainly found in intertidal mudflats of sheltered coasts. Also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland. Roosts on a shingle, shell or sand beaches and feeds on worms, molluscs, crustaceans, insects and some seeds. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Flame Robin	*Petroica phoenicea*	Two (2) recent records within 10km of the site. Breeds in upland tall moist eucalypt forests and woodlands, often on ridges and slopes. Prefers clearings or areas with open under story's. The ground layer of the breeding habitat is dominated by native grasses and the shrub layer may be either sparse or dense. In winter lives in dry forests, open woodlands and in pastures and native grasslands, with or without scattered trees. Breeds in spring to late summer. Nests are often near the ground and are built in sheltered sites, such as shallow cavities in trees, stumps or banks. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Freckled Duck	*Stictonetta naevosa*	Two (2) recent records within 10km of the site. Found primarily in south-eastern and south-western Australia, and known to occur within the Cumberland Plain. Prefer permanent freshwater swamps and creeks with heavy growth of Cumbungi, Lignum or Tea tree. Feeds on algae, seeds and vegetative parts of aquatic grasses and sedges and small invertebrates. Nesting occurs between October and December. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Little Eagle	*Hieraaetus morphnoides*	Four (4) recent records within 10km of the site. Found throughout the Australian mainland excepting the most densely forested parts of the Dividing Range escarpment. Occurs as a single population throughout NSW. Occupies open eucalypt forest, woodland or open woodland. Nests in tall living trees within a remnant patch, where pairs build a large stick nest in winter. Preys on birds, reptiles and mammals, occasionally adding large insects and carrion. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Little Lorikeet	*Glossopsitta pusilla*	Three (3) recent records within 10km of the site. Distributed widely across the coastal and Great Divide regions of eastern Australia from Cape York to South Australia. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year and 'locally nomadic' movements are suspected of breeding pairs. Forages high in treetops and nests in small tree hollows.

		Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Major Mitchell's Cockatoo	*Lophochroa leadbeateri*	One (1) recent records within 10km of the site. Found across the arid and semi-arid inland of Australia. In NSW it is found regularly as far east as Bourke and Griffith, and sporadically further east than that. Inhabits a wide range of treed and treeless inland habitats, always within easy reach of water. Feeds mostly on seeds of native and exotic melons and species of saltbush, wattles and Cyprus pines. Nesting occurs throughout the second half of the year. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Painted Honeyeater	*Grantiella picta*	Two (2) recent records within 10km of the site. Greatest concentration of the population occurs on the inland slopes of the Great Dividing Range in NSW, VIC and southern QLD. Known to occur within the Cumberland Plain. Inhabits Boree, Brigalow and Box-Gum Woodland and Box-Ironbark Forests. Nesting occurs from spring to autumn. Feeds on insects and nectar from mistletoe or eucalypts. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Powerful Owl	*Ninox strenua*	One (1) recent record within 10km of the site. Nests in large tree hollows. Inhabits large tracts of forest in a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest. Roosts along creek lines. Feeds on medium-sized arboreal marsupials, particularly the Greater Glider, Common Ringtail Possum and Sugar Glider. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Regent Honeyeater	*Xanthomyza phrygia*	Five (5) recent records within 10km of the site. Inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River She oak. Mainly feeds on the nectar from a wide range of eucalypts and mistletoes. When nectar is scarce lerp, honeydew and insects comprise a large proportion of the diet. A shrubby understorey is an important source of insects and nesting material. No suitable habitat occurs on this site. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Scarlet Robin	*Petroica boodang*	Seven (7) recent records within 10km of the site. In NSW, it occurs from the coast to the inland slopes. Lives in dry eucalypt forests and woodlands with open understorey, i.e. grassy with few scattered shrubs. Lives in both mature and regrowth vegetation. Occasionally occurs in mallee or wet forest communities, or in wetlands and tea-tree swamps. Habitat usually contains abundant logs and fallen timber, which are important components of its habitat. Forages from low

		perches, fence-posts or on the ground, from where it pounces on small insects and other invertebrates that are taken from the ground, or off tree trunks and logs. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Speckled Warbler	*Chthonicola sagittata*	Ten (10) recent records within 10km of the site, one within 300m. The species is most frequently reported from the hills and tablelands of the Great Dividing Range, and rarely from the coast. Lives in a wide range of *Eucalyptus* dominated communities that have a grassy under storey, often on rocky ridges or in gullies. Typical habitat would include scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. Breeds between August and January. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Spotted Harrier	*Circus assimilis*	Two (2) recent records within 10km of the site. Occurs in grassy open woodland including *Acacia* and mallee remnants, inland riparian woodland, grassland and shrub steppe. Found most commonly in native grassland, but also occurs in agricultural land, foraging over open habitats including edges of inland wetlands. Breeding occurs in spring (or sometimes Autumn). Preys on terrestrial mammals (e.g. bandicoots, bettongs and rodents), birds and reptiles, occasionally insects and rarely carrion. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Square-tailed Kite	*Lophoictinia isura*	Two (2) recent records within 10km of the site. In NSW, scattered records of the species throughout the state indicate that the species is a regular resident in the north, north-east and along the major west-flowing river systems. It is a summer breeding migrant to the south-east, including the NSW south coast, arriving in September and leaving by March. Shows a particular preference for timbered watercourses. Breeding is from July to February. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Superb Parrot	*Polytelis swainsonii*	Two (2) recent records within 10km of the site. Occurs only in southeastern Australia. Found in NSW to the west of the Great Dividing Range. Mainly inhabits forests and woodlands dominated by eucalypts, especially River Red Gums and box eucalypts such as Yellow Box or Grey Box and typically breeds near watercourses. No suitable habitat on this site. Occurrence: Low likelihood of foraging but part of a very large home range. Habitat Value: Low likelihood of foraging habitat but part of a very large home range. No evidence of roosting or nesting found during survey and the site is not suitable roosting or nesting habitat. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any

		impact on this species. Conclusion: **No further assessment required.**
Swift Parrot	*Lathamus discolor*	Twenty-one (21) recent records within 10km of the site. Migrates to the Australian south-east mainland between March and October from Tasmania. Occurs in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favours trees such as Swamp Mahogany (*Eucalyptus robusta*), Spotted Gum (*Corymbia maculata*), Red Bloodwood (*C. gummifera*), Mugga Ironbark (*E. sideroxylon*) and White Box (*E. albens*). Breeds in Tasmania (October – January) Occurrence: Low likelihood. Not found during survey. Habitat Value: No high value food trees on site. No nesting hollows found during survey. There is no breeding habitat in NSW. No suitable habitat occurs on this site. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Varied Sittella	*Daphoenositta chrysoptera*	Twenty-one (21) recent records within 10km of the site, 4 within 500m. Endemic and widespread in mainland Australia. Found in eucalypt woodlands and forests throughout their range. Prefers rough-barked trees like stringybarks and ironbarks or mature trees with hollows or dead branches. Feeds mainly by gleaning on tree trunks or branches, moving downwards or along branches, searching for insects. Nest is a deep open cup, like a cone, of bark and spider web, decorated on the outside with long pieces of bark and camouflaged to look like the fork or branch where it is placed. Occurrence: Medium likelihood. Not found during survey. Habitat Value: No high value food trees on site. No nesting hollows found during survey. There is no breeding habitat in NSW. No suitable habitat occurs on this site. Direct and Indirect Impacts: Low likelihood. The proposal is unlikely to have any impact on this species. Conclusion: **No further assessment required.**
Mammalia		
Eastern Bentwing-bat	*Miniopterus schreibersii oceanensis*	One (1) recent record within 10km of the site. Maternity roosts are usually in large caves or derelict mines, storm-water tunnels, buildings and other man-made structures. Disperses over 300 km range from roost. Occurrence: Low likelihood of this site being used as part of a very large foraging home range. No roosts occur on this site. This site has no caves or similar structures that could be used for roosting. No recent records in locality. Habitat Value: Only likely to be a small part of a large foraging home range. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**
Eastern False Pipistrelle	*Falsistrellus tasmaniensis*	Three (3) recent records within 10km of the site. Found on the south-east coast and ranges of Australia. Prefers moist habitats, with trees taller than 20 m. Generally roosts in eucalypt hollows, but has also been found under loose bark on trees or in buildings. Females are pregnant in late spring to early summer. Occurrence: Low likelihood of this site being used as part of a very large foraging home range. No roosts occur on this site. This site has no caves or similar structures that could be used for roosting. No recent records in locality. Habitat Value: Only likely to be a small part of a large foraging home range. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**
Eastern Freetail-bat	*Mormopterus norfolkensis*	Eight (8) recent records within 10km of the site. Occurs in dry sclerophyll forest and woodland east of the Great Dividing Range. Roosts mainly in tree hollows but will also roost under bark or in man-made structures. Solitary and probably insectivorous. Occurrence: Low likelihood. Likely to use the site for foraging only. Habitat Value: Only low suitable foraging habitat on site. Direct and Indirect Impacts: Low likelihood.

		Conclusion: **No further assessment required.**
Koala	*Phascolarctos cinereus*	One (1) recent record within 10km of the site. Inhabits eucalypt woodlands and forests. Feeds on the foliage of more than 70 eucalypt species and 30 non-eucalypt species, but in any one area will select preferred browse species. Inactive for most of the day, feeding and moving mostly at night. Spend most of their time in trees, but will descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two ha to several hundred hectares in size. Occurrence: Low likelihood. No scats or individuals found during survey. Unlikely to use the site for foraging. Habitat Value: Only low suitable foraging habitat on site. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**
Greater Broad-nosed Bat	*Scoteanax rueppellii*	Six (6) recent records within 10km of the site. Dependent on mature forest on soils of high fertility with preference for moist gully forests. Roosts in tree hollows (chiefly eucalypts) and in the roof spaces. Occurrence: Low likelihood. No scats or individuals found during survey. Unlikely to use the site for foraging. Habitat Value: Only low suitable foraging habitat on site. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**
Grey-headed Flying-fox	*Pteropus poliocephalus*	Five (5) recent records within 10km of the site. Roosting camps are generally located within 20 km of a regular food source and in gullies, close to water, in vegetation with a dense canopy. Feeds on the nectar and pollen of native trees, in particular Eucalyptus, Melaleuca and Banksia, and fruits of rainforest trees and vines. Permanent camp at Gordon Occurrence: High likelihood to forage or fly over on a regular basis. Habitat Value: No food trees on site. No chance of roosting or breeding habitat. Direct and Indirect Impacts: Low likelihood. Only a colony or large food resource is likely to be relevant to this species. This site is neither. Conclusion: **No further assessment required.**
Southern Myotis	*Myotis macropus*	Six (6) recent records within 10km of the site, one within 200m. Importance of site: **Medium**. Needs caves, mines, stormwater pipes, road culverts, tree hollows and similar sites for roosting and breeding. Known to use abandoned fairy martin nests. Occurrence: Low likelihood. No scats or individuals found during survey. Unlikely to use the site for foraging. Habitat Value: Only low suitable foraging habitat on site. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**
Squirrel Glider	*Petaurus norfolcensis*	Importance of site: **Low**. Inhabits mature or old growth Box, Box-Ironbark woodlands and River Red Gum forest west of the Great Dividing Range and Blackbutt-Bloodwood forest with heath understorey in coastal areas. Prefers mixed species stands with a shrub or Acacia midstorey. Require abundant tree hollows for refuge and nest sites. Diet varies seasonally and consists of *Acacia* gum, eucalypt sap, nectar, honeydew and manna, with invertebrates and pollen providing protein. Occurrence: Low likelihood. No scats or individuals found during survey. Unlikely to use the site for foraging. Habitat Value: Only low suitable foraging habitat on site. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**
Yellow-bellied Glider	*Petaurus australis*	Two (2) recent records within 10km of the site. Occurs in tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils. Extracts sap by incising or biting into the trunks and branches of favoured food trees, often leaving a distinctive 'V'-shaped scar. Feeds primarily on plant and insect exudates, including nectar, sap, honeydew and manna with pollen and insects providing protein. Lives in small family groups of two - six individuals and is

		nocturnal. Dens, often in family groups, in hollows of large trees. Very mobile and occupies large home ranges between 20 to 85ha. Occurrence: Low likelihood. No scats or individuals found during survey. Unlikely to use the site for foraging. Habitat Value: Only low suitable foraging habitat on site. Direct and Indirect Impacts: Low likelihood. Conclusion: **No further assessment required.**

4.8.3 Non-Threatened Fauna Found

During the site inspection evidence was found of the following fauna species using the site or adjacent areas.

Table 8: Fauna Species Found During Survey

Common Name	Scientific Name	Evidence
Amphibians		
Common Eastern Froglet	*Crinia signifera*	Heard
Birds		
Superb Fairy-wren	*Malurus cyaneus*	Observed
Laughing Kookaburra	*Dacelo novaeguineae*	Observed
Noisy Miner	*Manorina melanocephala*	Observed
Australian Magpie	*Cracticus tibicen*	Observed
Australian Raven	*Corvus coronoides*	Observed
Welcome Swallow	*Hirundo neoxena*	Observed
White-winged Chuff	*Corcorax melanorhamphos*	Observed
Spur-winged Plover	*Vanellus miles*	Observed
Crested Dove	*Ocyphaps lophotes*	Observed
Mammals		
Eastern Grey Kangaroo	*Macropus giganteus*	Observed
European Rabbit	*Oryctolagus cuniculus*	Scats and diggings
Domestic Dog	*Canis lupus familiaris*	Scat
Reptiles		
Garden Skink	*Lampropholis delicata*	Observed
Forest Dragon	*Hypsilurus spinipes*	Observed

*Denotes Threatened Species listed under the TSC Act 1995 or the EPBC Act 1999

4.9 Impact on Wildlife Corridor

The Study Area is a larger bushland fragment for the Penrith City LGA, as it is between two (2) Nature Reserves, and forms part of a wildlife corridor that runs in a north – south direction.

The bushland on the property is part of a high value wildlife corridor that connects Castlereagh Nature Reserve to the south-west with Windsor Downs Nature Reserve to the north-east.

The proposal will result in a loss of 150m^2 of fair quality Castlereagh Scribbly Gum Woodland VEC from Area 3 due to the construction. 1500m^2 of scattered remnant trees (not Threatened) will be lost from Area 2 due to the construction. 385m^2 of re-growing bushland (not Threatened) will be thinned in Area 4 for the establishment of an APZ around the new dwelling. The remaining bushland in Areas 2 and 3 is already disturbed, either for APZ or un-sealed roads, and there will be no change to the management of these Areas. Area 5 will not be disturbed by the proposal but it is immediately adjacent to the proposal.The Site is an important part of this wide wildlife corridor and this proposal will only disturb a small part of this corridor. This proposal will not further fragment or isolate any habitat areas.

4.10 Loss of Tree Hollows

More than 300 species of Australian native animals (mammals, birds, reptiles and amphibians) use tree hollows for nesting (Gibbons et al, 2002). Some eucalypts develop hollows at all ages, but in some cases, tree hollows suitable for vertebrate fauna may take up to 250 years to develop. The loss of tree hollows is a key threatening process for many native species and should be avoided where possible.

One tree with a hollow was found during the survey in Area 5, which will not be affected by the proposal.

5 Threatened Species Impact Assessment

5.1 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) becomes relevant if the proposal will have a significant impact on a 'matter of National Environmental Significance (NES)' thus providing a trigger for referral of the proposal to the Department of the Environment and Water Resources.

Matters of national environmental significance identified in the Act are: world heritage properties; national heritage places; Ramsar wetlands; nationally Threatened Species and Communities; migratory species protected under international agreements; the Commonwealth marine environment; and nuclear actions.

This proposal may impact Nationally Threatened species. The Site contains one (1) Vulnerable plant species *Micromyrtus minutiflora*, and one (1) Endangered plant species *Persoonia nutans* occurs immediately adjacent to the Site.

The proposal is considered to not be likely to have a significant impact on a matter of National Environmental Significance, or a significant impact on the environment in general, and therefore will not need to be referred to the Department of the Environment and Water resources for approval under the EPBC Act.

5.2 7-part Tests of Significance

Three (3) Threatened Species were identified to be present/using the site during the site survey. An Assessment of Significance (7-part test) as described in part 5A of the EP&A Act 1979 was considered warranted for these three (3) species listed below:

Dillwynia tenuifolia

Micromyrtus minutiflora

Persoonia nutans

One (1) Vulnerable Ecological Community was identified to be present within the site during the survey. An Assessment of Significance (7-part test) as described in part 5A of the EP&A Act 1979 was considered warranted for the community listed below:

Castlereagh Scribbly Gum Woodland VEC

The Assessments of Significance (7-part tests) are in Appendix A.

6 Biodiversity Impact Conclusions

The proposal is not likely to have a significant impact on the conservation of any threatened species, population or ecological community. Therefore further assessment in the form of a Species Impact

Statement (SIS) is not recommended in relation to this proposal. It must be noted that this conclusion only applies to the proposal described in this report, the assumptions made in this report and the development shown on Map 5, 6 and 7 of this report. The recommendations below should be followed to further offset the impact of the proposal.

7 Ameliorative Conditions & Recommendations

- Area 1 – The playing field. Ongoing management in this area should be continued, regular mowing and weed control.
- Area 2 – The scattered trees. Ongoing management should include weed control of this area and regular slashing to a height of 300mm to achieve an 8t/ha Asset Protection Zone.
- Area 3 – The existing APZ of Castlreragh Scribbly Gum Woodland VEC. Ongoing management should be marking and fencing the *Micromyrtus minutiflora* plants, erecting signs which identify the area as containing a Threatened species, and prohibiting slashing within the fenced area, careful hand slashing around the plants, and maintained as an APZ where not built upon. An annual search for Threatened plants should be undertaken, with any new Threatened plants being identified and appropriately protected.
- Area 4 - The regrowth bushland. Ongoing management should be weed control and this area should be maintained as an APZ where not built upon.
- Area 5 –The No Go zone. This area should be left as with no disturbance to this area.
- No vegetation removal or modification is to occur beyond the existing dirt road to the north east of the APZ in Area 5.
- Weeds are to be effectively controlled on the whole of the property in the long term using industry standard techniques and qualified bush regenerators.
- When establishing the APZ exotic species must be removed first and native species only removed if required to minimise ecological impacts. It is often not necessary to remove any native vegetation once the weeds and dry litter have been removed. Logs and rocks are not flash fuel and are not to be removed. Tree cover is to be 20% canopy cover. Shrubs are to be removed to achieve 20% cover and only in clumps more than 10m from the building. Live native ground cover plants are not to be removed.
- Disturbance to the native vegetation is to be minimized to the least amount required and using the least ecologically damaging techniques. Any modification of the bushland for bushfire protection is to be carried out using bush regeneration techniques.

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Appendix A: Assessments of Significance (7-part tests)

8.1 Dillwynia tenuifolia 7-part test

Dillwynia tenuifolia is a low spreading pea-flower shrub to a metre high. Its leaves are small and narrow (linear-terete, soft, 4-12mm long, with the tip often bent downwards). The wide orange-yellow and red pea flowers are usually single, at or near the tips of the branches. Seed pods are brownish, egg-shaped, 4-5mm long with reticulate seeds. Both the singular orange flowers and the stem hairs distinguish it from the similar and more common yellow-flowered *Dillwynia glaberrima* and *D. floribunda*.

The core distribution is the Cumberland Plain from Windsor and Penrith east to Dean Park near Colebee. In western Sydney, it may be locally abundant particularly within scrubby/dry heath areas within Castlereagh Ironbark Forest and Shale Gravel Transition Forest on tertiary alluvium or laterised clays. Flowering occurs sporadically from August to March depending on environmental conditions. The lifespan is estimated to be 20-30 years. Seeds are hard coated and are persistent in the soils seed bank. Dispersal is likely to be localised and ants are the probable vectors.

a) *In the case of a Threatened Species, whether the action proposed is likely to have an **adverse effect** on the **lifecycle** of the species such that a **viable local population** of the species is likely to be placed at **risk of extinction**.*

Response:

The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3. 385m^2 of poor quality habitat in Area 4 will be heavily modified by establishing and maintaining a bushfire Asset Protection Zone by annually slashing the shrub canopy to a height of 30mm. The proposed dwellings are located within a heavily disturbed and cleared area that is dominated by exotic plants. There will be no high quality bushland removed as part of the proposal. There were no *Dillwynia tenuifolia* plants found within the areas that will be removed or modified. There were plants found within 50m of the disturbance area.

This species is know to occur within the nearby Castlereagh and Windsor Downs Nature Reserves, as well as within the subject property on the opposite side of the dirt road in the north eastern corner, to the north of the existing RSPCA Kennels. The local population is likely to be viable. Due to the adequate representative reservations occurring within the nearby vicinity it is unlikely that the proposed development will have an adverse effect on the life cycle of this species such that the viable local population is likely to be placed at risk of extinction. Due to the cleared nature of the part property proposed to be disturbed and the relatively small area of habitat impacted compared to the amount of habitat in the locality, this proposal is not likely to result in the significant loss of any habitat.

b) *In the case of an Endangered Population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the Endangered Population such that a viable local population of the species is likely to be placed at risk of extinction.*

Response:

Dillwynia tenuifolia is not listed as an Endangered Population in this area; therefore this question is not applicable.

c) *In the case of an Endangered Ecological Community or Critically Endangered Ecological Community, whether the action proposed:*

   i) *is likely to have an adverse effect on the extent of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction, or*

   ii) *is likely to substantially and adversely modify the composition of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction.*

Response:

Dillwynia tenuifolia is not listed as an Endangered Ecological Community or a Critically Endangered Ecological Community; therefore this question is not applicable.

d) *In relation to the **habitat** of a Threatened Species, Population or Ecological Community:*

   i) *the extent to which habitat is likely to be **removed** or **modified** as a result of the action proposed, and*

   ii) *whether an area of habitat is likely to become **fragmented** or **isolated** from other areas of habitat as a result of the proposed action, and*

   iii) *the **importance** of the habitat to be removed, modified, fragmented or isolated to the **long-term survival** of the species, population or ecological community in the **locality**.*

Response:

(i) The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland in Area 3 and heavily modify 385m^2 of poor quality habitat in Area 4, located within the north eastern corner of the property. This habitat forms a tiny part of the known occurrence in the locality for this species. The proposed development is located in a degraded and weedy part of the property. The land adjacent to the proposed development provides good quality habitat for this species.

(ii) The proposed development is unlikely to further fragment or isolate any habitat and it is unlikely to significantly isolate or fragment the local population such that it would be placed at risk of extinction.

(iii) The importance of the habitat to be removed or modified to the long-term survival of the species in the locality is low due to disturbance and the small size of the area.

e) *Whether the action proposed is likely to have an **adverse effect** on **critical habitat** (either directly or indirectly).*

Response:

Critical habitat cannot be declared for *D. tenuifolia* as it is not listed on Schedule 1 of the NSW *Threatened Species Conservation Act* 1995.

f) *Whether the action proposed is consistent with the objectives or actions of a **recovery plan or threat abatement plan**.*

Response:

The Office of Environment and Heritage (OEH) has prepared a Priority Action Statement (PAS) to promote the recovery of Threatened species and the abatement of key threatening processes in New South Wales. The proposal is consistent with the PAS.

g) *Whether the action proposed constitutes or is part of a **key threatening process** or is likely to result in the operation of, or increase the impact of, a key threatening process.*

Response:

The key threatening processes for this species are high frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition, clearing of native vegetation, slashing, grazing, trampling and habitat modification through altered fire regime, urban run-off, weeds, rubbish dumping, indiscriminate vehicular and pedestrian access. The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3 and heavily modify 385m^2 of poor quality bushland in Area 4 and there will be no disturbance to high quality habitat. The slashing

within the APZ of the buildings will be in a small area in comparison to the known occurrence of the species in this locality. There will no longer be fires in the APZ area. If the recommendations of this report are followed, the proposed development is unlikely to result in the operation of, or increase the impact of, a key threatening process.

Conclusions of impacts on *Dillwynia tenuifolia*:

The proposed development shown on Maps 5, 6 and 7 and described in this report is unlikely to have a significant impact on the local population of this species. Further assessment in the form of a Species Impact Statement is not considered necessary for this species for this proposal. This conclusion needs to be read in conjunction with the limitations and assumptions section of this report. Ways to further reduce the impact of the proposal are given.

8.2 Micromyrtus minutiflora 7-part test

Micromyrtus minutiflora is a slender, low spreading shrub typically less than 1 meter high. Leaves oblong to ovate, 1-4mm long, 0.5-1mm wide, edge with fine hairs. Flowers white, solitary on a stalk to 0.5mm long, sometimes forming small terminal clusters. Petals elliptic, approx. 1mm long, white. Distribution is restricted to the general area between Richmond and Penrtih, western Sydney. Grows in Castlereagh Scribbly Gum Woodland, Ironbark Forest, Shale/Gravel Transition Forest, open forest on tertiary alluvium and consolidated river sediments. Flowering is sporadic, between June to March.

The total number of individuals is estimated to be as low as 1800. Only a single population of fewer than 50 individuals is known to occur within Castlereagh Nature Reserve. The existing populations are highly fragmented due to clearing for agricultural and urban development and are threatened by further clearing, frequent fire and habitat degradation. Various activities are contributing to habitat degradation including illegal rubbish dumping, weed invasion, arson, grazing and trail bike riding.

a) *In the case of a Threatened Species, whether the action proposed is likely to have an **adverse effect** on the **lifecycle** of the species such that a **viable local population** of the species is likely to be placed at **risk of extinction.***

***Response*:**

The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3. 385m^2 of poor quality habitat in Area 4 will be heavily modified by establishing and maintaining a bushfire Asset Protection Zone by annually slashing the shrub canopy to a height of 30mm. The proposed dwellings are located within a heavily disturbed and cleared area that is dominated by exotic plants. There will be no high quality bushland removed as part of the proposal. *Micromyrtus minutiflora* were not found within the Areas of bushland to be removed.

This species is know to occur within the nearby Castlereagh and Windsor Downs Nature Reserves, as well as within the subject property on the opposite side of the dirt road in the north eastern corner, to the north of the existing RSPCA Kennels. The local population is likely to be viable. Due to the adequate representative reservations occurring within the nearby vicinity it is unlikely that the proposed development will have an adverse effect on the life cycle of this species such that the viable local population is likely to be placed at risk of extinction. Due to the cleared nature of the part property proposed to be disturbed and the relatively small area of habitat impacted compared to the amount of habitat in the locality, this proposal is not likely to result in the significant loss of any habitat.

b) *In the case of an Endangered Population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the Endangered Population such that a viable local population of the species is likely to be placed at risk of extinction.*

Response:

Micromyrtus minutiflora is not listed as an Endangered Population in this area; therefore this question is not applicable.

c) *In the case of an Endangered Ecological Community or Critically Endangered Ecological Community, whether the action proposed:*

iii) *is likely to have an adverse effect on the extent of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction, or*

iv) *is likely to substantially and adversely modify the composition of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction.*

Response:

Micromyrtus minutiflora is not listed as an Endangered Ecological Community or a Critically Endangered Ecological Community; therefore this question is not applicable.

d) *In relation to the **habitat** of a Threatened Species, Population or Ecological Community:*

iv) *the extent to which habitat is likely to be **removed** or **modified** as a result of the action proposed, and*

v) *whether an area of habitat is likely to become **fragmented** or **isolated** from other areas of habitat as a result of the proposed action, and*

vi) *the **importance** of the habitat to be removed, modified, fragmented or isolated to the **long-term survival** of the species, population or ecological community in the **locality**.*

Response:

(i) The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3 and heavily modify 385m^2 of poor quality habitat in Area 4, located within the north eastern corner of the property. This bushland forms a tiny part of the known occurrence in the locality for this species. The proposed development is located in a degraded and weedy part of the property. The land adjacent to the proposed development provides good quality habitat for this species.

(ii) The proposed development is unlikely to further fragment or isolate habitat and it is unlikely to significantly isolate or fragment the local population such that it would be placed at risk of extinction.

(iii) The importance of the habitat to be removed or modified to the long-term survival of the species in the locality is low due to disturbance and the small size of the area.

e) *Whether the action proposed is likely to have an **adverse effect** on **critical habitat** (either directly or indirectly).*

Response:

Critical habitat has not been declared for *Micromyrtus minutiflora*.

f) *Whether the action proposed is consistent with the objectives or actions of a **recovery plan or threat abatement plan**.*

Response:

No recovery plan or threat abatement plan exists for this species.

g) *Whether the action proposed constitutes or is part of a **key threatening process** or is likely to result in the operation of, or increase the impact of, a key threatening process.*

Response:

The main identified threats to this species are habitat loss through vegetation clearing for urban development, frequent fire, and habitat degradation through weed invasion, arson, grazing, trail bike riding and rubbish dumping. The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3 and heavily modify 385m^2 of poor quality habitat in Area 4, and there will be no disturbance to high quality bushland. The slashing within the APZ of the buildings will be small in comparison to the known occurrence of the species in this locality. There will no longer be fires in the APZ area. If the recommendations of this report are followed, the proposed development is unlikely to result in the operation of, or increase the impact of, a key threatening process.

Conclusions of impacts on *Micromyrtus minutiflora*:

The proposed development shown on Map 2 and described in this report is unlikely to have a significant impact on the local population of this species. Further assessment in the form of a Species Impact Statement is not considered necessary for this proposal on this part of the site. This conclusion needs to be read in conjunction with the limitations and assumptions section of this report. Ways to further reduce the impact of the proposal are given.

8.3 *Persoonia nutans* 7-part test

Persoonia nutans is an erect to spreading shrub to 2.5m high with hairy young branches. Leaves are well separated on mature stems, linear, 1-3cm long, 1-1.8mm wide, usually flat, with re-curved margins. Flowers are yellow, pendant to drooping on a stalk to 12mm long. Flowering typically occurs from November to March. Distribution is restricted to the Cumberland Plain in western Sydney, between Richmond and Macquarie Fields. Northern populations are confined to Aeolian and alluvial sediments and occur in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks Woodland or Castlereagh Scribbly Gum Woodland and some in Cooks River/Castlereagh Ironbark Forests. Southern populations also occupy tertiary alluvium, but extend onto shale sandstone transition communities and into Cooks River/Castlereagh Ironbark Forest.

An obligate seed regenerator. Seed germination is promoted by fire and also by physical disturbance. Maturity is expected in about 10 years. Plants appear to set abundant fruit. Seed is likely to be dispersed, after consumption of the fruit, by large birds and mammals. Abundance at a site appears to be related to disturbance history. Sites with higher abundance also appear to be more disturbed.

a) *In the case of a Threatened Species, whether the action proposed is likely to have an **adverse effect** on the **lifecycle** of the species such that a **viable local population** of the species is likely to be placed at **risk of extinction**.*

***Response*:**

The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3. 385m^2 of poor quality habitat in Area 4 will be heavily modified by establishing and maintaining a bushfire Asset Protection Zone by annually slashing the shrub canopy to a height of 30mm. The proposed dwellings are located within a heavily disturbed and cleared area that is dominated by exotic plants. There will be no high quality bushland removed as part of the proposal. There were no *Persoonia nutans* found within the Areas that will be removed or modified.

This species is know to occur within the nearby Castlereagh and Windsor Downs Nature Reserves, as well as within the subject property on the opposite side of the dirt road in the north eastern corner, to the north of the existing RSPCA Kennels. The local population is likely to be viable. Due to the adequate representative reservations occurring within the nearby vicinity it is unlikely that the proposed development will have an adverse effect on the life cycle of this species such that the viable local population is likely to be placed at risk of extinction. Due to the cleared nature of the part property proposed to be disturbed and the relatively small area of habitat impacted compared to the amount of habitat in the locality, this proposal is not likely to result in the significant loss of any habitat.

b) *In the case of an Endangered Population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the Endangered Population such that a viable local population of the species is likely to be placed at risk of extinction.*

Response:

Persoonia nutans is not listed as an Endangered Population in this area; therefore this question is not applicable.

c) *In the case of an Endangered Ecological Community or Critically Endangered Ecological Community, whether the action proposed:*

v) *is likely to have an adverse effect on the extent of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction, or*

vi) *is likely to substantially and adversely modify the composition of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction.*

Response:

Persoonia nutans is not listed as an Endangered Ecological Community or a Critically Endangered Ecological Community; therefore this question is not applicable.

d) *In relation to the **habitat** of a Threatened Species, Population or Ecological Community:*

vii) *the extent to which habitat is likely to be **removed** or **modified** as a result of the action proposed, and*

viii) *whether an area of habitat is likely to become **fragmented** or **isolated** from other areas of habitat as a result of the proposed action, and*

ix) *the **importance** of the habitat to be removed, modified, fragmented or isolated to the **long-term survival** of the species, population or ecological community in the **locality**.*

Response:

(i) The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland habitat in Area 3 and heavily modify 385m^2 of poor quality habitat in Area 4, located within the north eastern corner of the property. This bushland forms a tiny part of the known occurrence in the locality for this species. The proposed development is located in a degraded and weedy part of the property. The land adjacent to the proposed development provides good quality habitat for this species.

(ii) The proposed development is unlikely to further fragment or isolate habitat and it is unlikely to significantly isolate or fragment the local population such that it would be placed at risk of extinction.

(iii) The importance of the habitat to be removed or modified to the long-term survival of the species in this locality is low due to disturbance and the small size of the area.

e) *Whether the action proposed is likely to have an **adverse effect** on **critical habitat** (either directly or indirectly).*

Response:

Critical habitat has not been declared for *Persoonia nutans*.

f) *Whether the action proposed is consistent with the objectives or actions of a **recovery plan or threat abatement plan**.*

Response:

A Recovery Plan for *Persoonia nutans* was released in January 2006. The overall objective of the document is to ensure the continued and long-term survival of *P. nutans* in the wild by promoting the in situ conservation of the species across its natural range. Specific recovery objectives include: minimise

the loss and fragmentation of habitat; identify and minimise the operation of threats at sites where *P. nutans* occurs; implement a survey and monitoring program that will provide information on the extent and viability of *P. nutans;* provide public authorities with information that assists in conserving the species; raise awareness of the species and involve the community in the recovery program; and promote research questions that will assist future management decisions.

The loss of any habitat would be inconsistent with the recovery plan.

g) *Whether the action proposed constitutes or is part of a* ***key threatening process*** *or is likely to result in the operation of, or increase the impact of, a key threatening process.*

Response:

The main identified threats to this species are habitat loss through vegetation clearing for urban development, frequent fire, and habitat degradation through weed invasion, arson, grazing, trail bike riding and rubbish dumping. The proposal will remove 150m^2 of fair quality Castlereagh Scribbly Gum Woodland in Area 3 and heavily modify 385m^2 of poor quality bushland in Area 4, and there will be no disturbance to high quality bushland. There will be some slashing within the APZ of the buildings however this area will be small in comparison to the known occurrence of the species in this locality. If the recommendations of this report are followed, the proposed development is unlikely to result in the operation of, or increase the impact of, a key threatening process.

Conclusions of impacts on *Persoonia nutans*:

The proposed development shown on Map 5, 6 and 7 and described in this report is unlikely to have a significant impact on the local population of this species. Further assessment in the form of a Species Impact Statement is not considered necessary for this proposal on this part of the site. This conclusion needs to be read in conjunction with the limitations and assumptions section of this report. Ways to further reduce the impact of the proposal are given.

8.4 Castlereagh Scribbly Gum VEC 7-part test

Castlereagh Scribbly Gum Woodland in the Sydney Basin Bioregion is dominated by *Eucalyptus parramattensis* subsp. *parramattensis, Angophora bakeri,* and *Eucalyptus sclerophylla.* It has a well-developed shrub stratum consisting of sclerophyllous species such as *Banksia spinulosa* var. *spinulosa, Melaleuca nodosa, Hakea sericea* and *Hakea dactyloides.* The ground stratum consists of a diverse range of forbs including *Themeda australis, Entolasia stricta, Cyathochaeta diandra, Dianella revolute* subsp. *revolute, Stylidium graminifolium, Platysace ericoides, Laxmannia gracilis* and *Aristida warburgii* (Tozer, 2006).

CSGW occurs almost exclusively on soils derived from Tertiary alluvium, or on sites located on adjoining shale or Holocene alluvium. It is most often found on sandy soils and tends to occur on higher ground. This VEC occurs within the local government areas of Bankstown, Blacktown, Campbelltown, Hawkesbury, Liverpool and Penrith, but may also occur elsewhere within the Sydney Basin Bioregion.

a) *In the case of a Threatened Species, whether the action proposed is likely to have an* ***adverse effect*** *on the* ***lifecycle*** *of the species such that a* ***viable local population*** *of the species is likely to be placed at* ***risk of extinction****.*

Response:

Castlereagh Scribbly Gum VEC is not listed as a Threatened Species; therefore this question is not applicable.

b) *In the case of an Endangered Population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the Endangered Population such that a viable local population of the species is likely to be placed at risk of extinction.*

Response:

Castlereagh Scribbly Gum VEC is not listed as a Endangered Population; therefore this question is not applicable.

c) *In the case of an Endangered Ecological Community or Critically Endangered Ecological Community, whether the action proposed:*

vii) *is likely to have an adverse effect on the extent of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction, or*

viii) *is likely to substantially and adversely modify the composition of the Ecological Community such that its local occurrence is likely to be placed at risk of extinction.*

Response:

Castlereagh Scribbly Gum VEC is not listed as an Endangered Ecological Community or a Critically Endangered Ecological Community; therefore this question is not applicable.

d) *In relation to the **habitat** of a Threatened Species, Population or Ecological Community:*

x) *the extent to which habitat is likely to be **removed** or **modified** as a result of the action proposed, and*

xi) *whether an area of habitat is likely to become **fragmented** or **isolated** from other areas of habitat as a result of the proposed action, and*

xii) *the **importance** of the habitat to be removed, modified, fragmented or isolated to the **long-term survival** of the species, population or ecological community in the **locality**.*

Response:

(i) The proposal will remove or modify 150m^2 of poor quality VEC within the north eastern corner of the property. This bushland forms a tiny part of the known occurrence in the locality for this species. The proposed development will be located in a degraded and weed infested part of the property. The land adjacent to the proposed development provides good quality habitat for this species.

(ii) The proposed development is unlikely to further fragment or isolate any habitat and it is unlikely to significantly isolate or fragment the local population such that it would be placed at risk of extinction.

(iii) The importance of the habitat to be removed or modified to the long-term survival of the species is low.

e) *Whether the action proposed is likely to have an **adverse effect** on **critical habitat** (either directly or indirectly).*

Response:

Critical habitat has not been declared for Castlereagh Scribbly Gum VEC.

f) *Whether the action proposed is consistent with the objectives or actions of a **recovery plan or threat abatement plan**.*

Response:

No recovery plan or threat abatement plan exists for this species.

g) *Whether the action proposed constitutes or is part of a **key threatening process** or is likely to result in the operation of, or increase the impact of, a key threatening process.*

Response:

The main identified threats to this species are: Isolation and fragmentation of the community; clearing for urban development; inappropriate fire regime as a result of arson and hazard reduction burns for property protection being undertaken in an unsuitable time-frame; invasion by exotic plants; impacts of climate change; soil erosion and degradation, harm to water courses and impacts on vegetation as a result of recreational vehicle use; removal of fallen timber for firewood; rubbish dumping; infestation by the soil pathogen *Phytophthora cinnamomi;* and clearing of the understorey and mid-storey elements of the community and addition of fertilisers as part of managing small rural holdings.

This proposal will require 150m^2 of poor quality bushland to be disturbed or cleared and no disturbance to high quality bushland. There will be continued slashing within the APZ of the buildings however this area will be small in comparison to the known occurrence of the species in this locality. If the recommendations of this report are followed, the proposed development is unlikely to result in the operation of, or increase the impact of, a key threatening process.

Conclusions of impacts on Castlereagh Scribbly Gum Vulnerable Ecological Community:

The proposed development shown on Maps 5, 6 and 7 and described in this report is unlikely to have a significant impact on this community. Further assessment in the form of a Species Impact Statement is not considered necessary for this proposal on this part of the site. This conclusion needs to be read in conjunction with the limitations and assumptions section of this report. Ways to further reduce the impact of the proposal are given.